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MATERNAL MORTALITY.

A Critical Review of the Statistical References in the INTERIM REPORT of the DEPARTMENTAL COMMITTEE on MATERNAL MORTALITY & MORBIDITY.

by

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INTRODUCTION.

The subject of Puerperal Mortality has been lately very prominently paraded in the lay and professional press. To the layman the failure to reduce the risk of death from pregnancy is a disgrace to the Medical profession. The stricture is reasonable. Medicine - in its widest sense - has progressed almost by leaps and bounds. Science has conquered one disease after another. Surgery, with its transition from a haphazard existence, through Lister's antiseptic phase to the modern aseptic régime, has achieved notable success. Banting and Best from their laboratory work gave the world Insulin. Sanitation has practically eliminated Enteric. The Dicks and Schick have prepared the way to eliminate Scarlet Fever and Diphtheria. These successes are well known to the average citizen and he wants to know why the same successful attention cannot be paid to the big group of deaths in women at childbirth. A nation exists by propagation. The loss of such a woman is not merely the loss of one person but the loss of a potential source of more children and also the loss of an exceedingly valuable factor in the family circle.

The subject has been brought more closely to the notice of the Profession because of the increased official activity and the various official publications

but in particular the "Interim Report of the Departmental Committee on Maternal Mortality and Morbidity". This Committee was appointed in 1928"to advise upon the application to maternal mortality and morbidity of the medical and surgical knowledge at present available, and to inquire into the needs and direction of further research work." It has interviewed numerous witnesses and collected and analysed 2000 of the Maternal Mortality Reports which have to be forwarded to it. .

It is a most unfortunate Report, obviously prepared in great haste. For a subject which the Ministry of Health maintains is so important the Committee's activities should have been hastened and a comprehensive report produced. In introducing Report No.25[1] in 1924 Sir George Newman said: "We must begin at the beginning. We must prevent, and we can only prevent by preparation." He is chairman of this Committee and he also directs the activities of a special Department, on this subject, which he formed in 1919. He has therefore had a long connection and many opportunities. It is difficult to discover anything of great value, judged by results, which these several "activities", over which he presides, have achieved. The Interim Report is faulty. Instead of the inquiry beginning at the foundation, it has rather concerned itself with the roof and decorations.

Professor Karl Pearson[2] has shown how constant science is in its method of acquiring knowledge, no matter what the subject is. The method is universal and consists of definite steps. First facts must be collected and recorded. Secondly these must be classified under various headings and in certain appropriate series or sequences. Finally these must be studied and a "scientific law" formulated to express these conclusions, or, in the case of a Medical subject, the final stage should be the enunciation of the pathogenesis and treatment.

This universal method of scientific progression has been disregarded by the Departmental Committee. Some data have been collected, but they are incomplete and frequently inaccurate. One of the first omissions which is obvious to even the non-professional investigator is the absence of any knowledge of the ages of parturient women. We know the ages at death and can collect this information for each quinquennial age group. We know nothing about the age of a woman at her confinement. Knowing the number of deaths in each quinquenniad does not indicate the risk for that period. That can only be calculated from the number of confinements in that age group which gives rise to so many deaths. From the most important point of view - the woman's - the question is simply - What risk do I run by becoming pregnant? The risk varies

with age, and until the above omission is made good that factor cannot be taken into consideration. The risk must include everything which may happen directly due to being pregnant. It should not be difficult to define such a group of possibilities. The situation is, however, far from straightforward and this Interim Report has done nothing to clear up the difficulties, in fact by its loose terminology it has created some new ones.

The death of a woman who dies from Chorion-Epithelioma is not classed as a Puerperal Death. That is to say she is not supposed to have died from a cause due to pregnancy. Without becoming pregnant in the first place she could never have developed a Chorion-Epithelioma. I have personal knowledge of this case, and this is the ruling of the Ministry of Health's Special Maternal Mortality Department. It is a farce! That woman ran a risk and the "odds" were against her. To tell her people that her death was not due to her pregnancy was untrue for it intimated that she could have died from the same cause without being pregnant, which was impossible. The trouble in classification of deaths is largely due to the cumbersome methods employed by the Registrar-General, without medical knowledge, in his interpretation of the "International Nomenclature of Causes of Death."

This Nomenclature[3] is the outcome of various

conferences since 1900, held for the purpose of co-ordinating the National Mortality Statistics of various countries. The Health Organisation of the League of Nations has supported this endeavour but only Great Britain, the Dominions, Holland, Japan and U.S.A. have undertaken to use the "International List" No.1. Is it worth while using a list which is so defective? The main object in its present form is its use for comparison with other countries. So few countries have adopted it that it has lost this main purpose.

The Interim Report when analysing Statistics for "Deaths Directly Due to Childbirth" quotes two tables, the one from the Registrar-General and the other from the Departmental Committee, for, the Report says, "the Registrar-General's classification could not conveniently be adopted for the type of clinical investigation undertaken by the Committee .... " This investigation is into the subject of Maternal Deaths, so that one must believe that the Committee is aware of the faults in the International List. Surely it is of fundamental importance that we should have exact statistics, exact data with which to fulfil Pearson's first universal step in a scientific investigation. The Committee has made no suggestions towards improving this faulty link.

The very vexed question of "Abortions" has been shelved by the Committee and the situation left as

uncertain as before. Two actual examples from my own department will illustrate the absurdity of the present classification of deaths.

Case A. Syncope. Acute peritonitis. Injury to womb and consequent infection and abscess caused by rigid instrument. Insufficient evidence to say by deceased or another person.

Case B. Syncope. Acute peritonitis supervening abortion and septic infection of uterus. How caused no evidence.

Case A. is obviously a criminal abortion. In law and procedure it falls to be classified according to the contents of the coroner's certificate, violence. Case B. is the trouble. There is no evidence as to how it was caused. This experience is common in many cases. The ruling is that such cases are to be classified as Puerperal Deaths. In 1929 in England and Wales[4] there were 238 deaths with a similar history to Case B. These deaths were classified to Puerperal Sepsis, not Abortion, under the ruling of the Registrar-General, these two being different rubrics under the large heading of the "Puerperal State". In addition 67 deaths were classed as Abortions and another 67 cases were recorded as "Criminal Abortions" and appear scattered about in various parts of Tables 17 and 22 of the Statistical Review.

These tables are misleading. People uninitiated into the unfortunate complications of this International List would read that there were 67 Abortions in 1929, whereas there were really 372 such cases. Even if we eliminate the definitely proved "criminal cases" the figure is 305 not 67. It is just such errors which make a poor foundation upon which the Committee are continuing to erect a jerry-built house.

From personal knowledge of the investigation of these cases it is obvious that many abortions are criminal. To prove the facts under the present system would be difficult and generally impossible. The total number of Puerperal Deaths in this year was 2787, and of abortions 372, or 305 accepted as natural cases. Taking either figure, it is over 10% of the total. These numbers help to swell the grand total of Puerperal Mortality. Are they really "risks of pregnancy and childbirth"? Those cases which are not true "risks" should be classed elsewhere. Criminal Abortions are assigned, rightfully, to various forms of violence and are not considered either in the Puerperal or non-Puerperal Mortality Rates. The other abortions are, however, all considered under the first rate and account for 10% of it. If even half of them were really criminal, and therefore not considered here, the total Puerperal Mortality would be reduced by 5%, a welcome improvement.

Many of the deaths assigned to "Puerperal Sepsis" - and to the 238 abortions grouped under this heading - are surely due to interference in an endeavour to get rid of an unwanted pregnancy. There were 1157 deaths due to this Sepsis, and in 885 cases the period of gestation was not stated. Such valuable omissions of information should be noted and rectified by some joint action of the Committee and the Registrar-General. It is impossible to estimate the number of these septic cases which probably originated in some interference. The number must be great. The patient seldom confides her secret to her attendant. The efforts may or may not be successful in emptying the uterus. If successful the case may be diagnosed as an abortion. If unsuccessful the only thing which confronts the Doctor is the sign of Sepsis and no proof or indication of the cause. He is to a great extent at the mercy of the history which the patient wishes to give him. He is only human, and unless the circumstances are very suspicious he is not going to press home an unsavoury accusation of some interference. Therefore the death is classified as one due to Puerperal Sepsis. But that death - and there are many of them - is not a true risk of pregnancy. It is neither a Puerperal Death nor one associated with pregnancy. Every year numbers of women die in this manner and their deaths are added to the swelling

list of Puerperal Mortality, giving a false picture.

In some countries in recording Puerperal Sepsis a distinction is made between those cases following abortion and those without such evidence. This is a movement in the right direction but is not a solution. The exact knowledge is required. If the Abortion or Sepsis is accidental it is a true risk of pregnancy, a risk which some women in any group must run. Therefore such are definitely Puerperal Deaths. If it follows some intentional interference it is no longer an ordinary risk and should cease to be classed as a death due to Puerperal Causes. Such are definitely deaths following violence. In our present haphazard routine a number of definite abortions and a large number of possible and probable abortions (many classed as Sepsis and others under other Puerperal headings) are grouped together and are undistinguished from genuine Puerperal Deaths.

The result is a series of statistics, year by year, which do not represent the true facts of the situation. The Committee accepts this unfortunate state of affairs and makes no attempt in any of its recommendations to improve it.

There is a solution. What is it?

It is agreed that these 3000 - 4000 maternal deaths every year are a disgrace. A strong body of opinion decided years ago that the situation should

be thoroughly investigated. Since 1919 the Ministry of Health has had a special Department and has shown signs of great activity. Various reports, circulars and explanatory notes have been issued and several "Committees" have sat. The ante-natal work has been extended and improved. Local Authorities have been given a stronger position from which to tackle the problem by additional Acts. Maternity Homes, Hospitals, grants of milk and even hot dinners to expectant mothers are all available under many Authorities. The papers of the country have lent their weighty force towards keeping the disgraceful facts continually in front of the people. In spite of all this activity the Puerperal Mortality Rate for England and Wales is high and going higher.

The Interim Report has made numerous suggestions. None of them seem to lead to the investigation and treatment of the foundations of the trouble. The nearest approach is the institution of a form of inquiry in every Maternal Death. This was suggested in 1924 but took four years to be put into action. It was suggested that the information should be such as to "provide proper and sound material for valid deduction and practical use." In practice the routine is that the Registrars immediately send to the Medical Officer of Health of the district special reports of all deaths where the presence of pregnancy or child-

birth is implied by the "cause of death", e.g. Puerperal Sepsis, or where the certificate actually states the fact. An inquiry is then set in motion from all possible sources and the questionnaire filled up. When all the information has been obtained the Officer in Charge - in some districts a Gynecologist acts but generally, as in my own case, the work is done by the Public Health Staff - tries to reconstruct the case and makes comments. The complete report is then sent in to the special section of the Ministry of Health under Dame Janet Campbell. This whole scheme is bristling with faults.

In the first place, to trace it step by step, the Registrars are unable to discover all the relevant cases. They are not Medical men, for one thing, and must miss obscure cases. Death certificates are not always as accurate as is desirable. In many cases for instance of fatal Abortions occurring early in pregnancy the maternal state will probably be missed completely. Unless the death takes place in the late months when the condition is obvious the chances are that the Doctor will fail to note and report the fact on his certificate. In Aberdeen[5], in their special detailed investigation, the possibility of "missed cases" is practically eliminated by a close co-operation of all the Public Services. The Registrars there keep a check by scrutinising the Register of

Births. This special and extraordinary action shows that even gestations going as far as to produce still-born or live babies when fatal are not always noted on the consequent Death Certificates. Further, the Health Visitors in Aberdeen work in much the same way as the Registrars and watch for any association between pregnancy or childbirth coming to their notice and deaths. With such an organisation Dr. Kinloch rightly feels that very few Maternal Mortality cases are missed.

This fortunate degree of accuracy cannot be claimed for England and Wales, so that the first step in the scheme of investigation is incomplete and faulty.

The questionnaire[6] drafted by the Committee was approved by the British Medical Association. In spite of this backing I am not alone among those who have to work the scheme in saying that it has been poorly worded. The Committee has stated that the form was constructed with a view to cover an inquiry into "all maternal deaths from any cause, whether puerperal or not." It is headed, however, "Maternal Mortality Due to Pregnancy or Childbirth." This title excludes those non-puerperal cases which the Committee, in the Interim Report, said it desired equally to be reported upon. Shakespeare questioned the value of a name. The Committee has not thought the title heading to

the Inquiry Form sufficiently important to be accurate. No matter what the official heading is the form is used for inquiry into all cases, including those which are not "due to" but "associated with" pregnancy and childbirth. This error is frequently noted and has more than once led to the belief that the Committee only wanted reports on the cases as per the title.

The spacing of the blanks for answers shows that the form was more of an abstract than a concrete idea when constructed.

I am sure that the "Stage of Pregnancy" is as important a question, as, if not more important than, the "Condition of Child". We are particularly interested in the mother and less so in the child. The form only asks the latter question. There certainly is a heading concerning the "LAST PREGNANCY"[10]. Judging by the frequency with which this is left unanswered other people must look upon it as an ambiguous phrase. It occupies a misleading position. It looks merely like a heading, due to its type. It presumes that the answer to the "Stage of Pregnancy" is only required in cases of Abortion. It is an unfortunate, and uninformed, presumption. The question might easily arise in a premature birth, to give one of several possible examples. I have now added the question to all my inquiries. The Committee does not seem to have visualised the practical working

of the scheme which it set in motion.

Each form gives the age at death and the dates of previous pregnancies, if any. The Interim Report has not made use of this valuable information. From these facts the age at each previous confinement can easily be found. We have no means of finding out, in a general way, the age of confinement. It has not been thought of sufficient importance. Nevertheless to "begin at the beginning" it seems very necessary to have this knowledge. It would help, together with the figures for Puerperal Deaths at each age, to determine a "risk" for that age. The information surely would be of greater value than merely knowing the gross number of deaths at any age. The solution is very simple. At every Registration of Births the age of the mother could be one of the questions. It does not seem to indicate a marked revolution, nor addition of much work. The authority for the change ought to be easily obtained. The result would certainly be of great help. Even without this the Committee have in their hands over 2000 reports of which 758 were on primiparae. Supposing 1000 multiparal reports were complete in this age respect they would produce a collection of over 2000, maybe 3000, reports on ages at confinements. These could be arranged in convenient quinquennial groups and would supply a rough idea of the confinement age

distribution.

The Committee seems to have forgotten the intention of going to the beginning and examining the foundations. After all the object of the inquiry was to make "valid deductions" from and "practical use" of the data gathered. This information has been neglected in spite of its obvious value and its long-felt absence from statistics.

The division for Ante-Natal information in my experience comes back more often than not incorrectly filled up, and little wonder. All forms for any and every purpose ought to be arranged so that the answering is made as easy and simple as possible. The greater the degree of simplicity the greater the degree of accuracy in the answers. It would have been clearer if each division on the form had been definitely headed and sharply defined. Once again it is difficult to know whether the heavily typed "ANTE NATAL CARE" is a heading or a question. Does the Committee expect some answer to be written immediately below it? Urine results are not the only reports of ante-natal examination which are important. The Committee evidently does not think, for instance, that a "contracted Pelvis" report would be of any interest. No space is left for such a note and no request is made for it. If, as in the previous section, the form can go into such minute details as it does about so called "infective" illnesses ,

surely in this section it might give the important subject of ante-natal discoveries a little more space and scope. It would, I am sure, interest the authors of this form to see how this section is completed by the majority to whom it is sent. Some write under the heading 1, 2, 3 the names of the Clinic attended, the Doctor there and maybe the name of the Midwife. Some inquirers must go to an amount of trouble in obtaining information. The form gives no indication whether these details are required and I can sympathise with the person who cannot decide what is really wanted.

The Section on "Previous Pregnancies" seems to "miss the point" in its inquiry about the child. Of what interest is it that a child is, say at the age of 10, "Living" and "Healthy"? Or, in the same way, of what interest is it to have these two questions answered respectively as "Dead" and a blank for a child who has died at the same age? Such answers - and the form asks for them - are of no value in this special inquiry and of little value, as far as I can see, for any general statistics. One would almost picture that the questionnaire was drawn up in a great hurry with little discussion and less deep consideration for the intended purpose. Surely the desired information about the result of previous pregnancies should be directed to find out the health,

history, or cause of death, in the first year of life of the child together with notes, for which space should be left, on the health after that if relevant to some congenital or infantile condition.

I like the general arrangement of the form used in Aberdeen[7]. It was in use long before the Departmental Committee was appointed in London and it might have been more closely followed with great advantage. In this inquiry the questions are put in a logical and intelligent sequence and manner. The first Section deals with the general and environmental history of the deceased and the father of the infant. Then the death is recorded in detail. After this introduction the form is definitely divided up into Ante-Natal, Natal, Child and Post-Natal sections each with bold, clear headings. In cases of Sepsis a special inquiry into possible sources comes next. Then there is a short report on Previous Pregnancies where it is made plain that some note should be made on miscarriages. Finally there is a space for additional information. It is this clear arrangement which makes the Official Form compare so poorly with the one arranged by the Health Authorities of Aberdeen.

The major portion of the Official Form is given over to very detailed questions in groups set round the likely causes of death such as Abortion, Toxaemias, Haemorrhage, Difficult Labour and Sepsis. It is a most

formidable looking document and sufficient to prejudice the most obliging practitioner against giving any help. As a rule only a small part of the form is really required in each case. My practice is to mark in red ink certain parts which the information from other sources in my possession leads me to select as being probably relevant. A note is attached to the effect that it will probably be sufficient to answer only those parts marked by red ink.

The reply to this inquiry is voluntary and therefore the questions should be made as simple as possible. If the Committee really wished to gather valuable data it ought, on the one hand, to compensate the persons giving the replies and, on the other hand, by paying for the information demand a greater degree of accuracy in the replies. There is a payment made for Notification of Infectious Diseases. The same system should be initiated for the Maternal Mortality Inquiry Form. The extra cost would be negligible. With 4000 of these deaths a year, even if a reasonable payment of say half a guinea were made, the total cost would be about £2000. Surely this insignificant sum spread over the numerous Authorities throughout England and Wales would repay itself many times in the better results. It is not work which should be voluntary and a payment as suggested is indicated in fairness to both sides of the question.

The value of some of the answers is questionable. Is a practitioner going to criticise his own actions and record his own faults, faults which have led to a fatal ending? This is expected. Without casting any aspersions on the Profession, I have no doubt that many men and women would refrain from recording their unfortunate errors and omissions. It is human. The confidential nature of the inquiry is mentioned but not stressed. In New Zealand[8] there is a wonderful routine. An inquiry there is initiated by a letter inviting the practitioner to make a report on the case. The confidential nature of the correspondence is stressed in a letter which says that "no matter what their (the inquiries) result, (they) are not intended to lead to anything further than to make suggestions of appreciation, or, when necessary, of criticisms of the course you have followed." Jellett says that the scheme is working very smoothly and there is a wonderful degree of co-operation. "A number of practitioners write spontaneously to ask for criticisms of, or suggestions on, cases they have had." The Health Department has the services of a Consulting Obstetrician. He replies to the reports in the manner indicated. This constructive criticism adds to the inducement to give fuller details.

Co-operation is not a marked feature of our Medical activities in this country. It should be cul-

tivated and that could be assisted, in this case, by approaching the profession as a whole, explaining the situation and appealing for a combined effort. It is useless to do this in patches. It must be done by some "universal" authority, such as the Committee or Sir George Newman. It is useless to try and make the appeal in the form of a "report". The average practitioner has no time to read a thesis the length of the Interim Report. Even the Memorandum[9] issued in December 1930 in which the Interim Report and the proposals for action have been summarised is too long, too official and too unattractive. The Ministry of Health is a body which endeavours to keep aloof and succeeds. Its method of sending circulars and much correspondence, for instance, to the Clerks of Council and not to the Medical Officer of Health, the person really concerned, is typical of this aloofness. The official attitude to the general practitioner is of a similar nature and creates an unfortunate barrier, the opposite to co-operation. If the Ministry acting for the Special Departmental Committee would only descend from aloft to a reasonable level and make an appeal for united action there would be, for a certainty, an improvement.

The inquiry in its present routine and the inquiry form in use are undoubtedly full of faults, as we have seen. The Committee has not made any

recommendations to change this part of the scheme. In fact, it does not seem as if this "record", or statistical aspect, is of any interest. The suggestions which are now being made for a better Public Maternity Scheme make no endeavour to increase the details and accuracy of the investigation. The original intention of obtaining such information as would "provide proper and sound material for valid deductions" has been forgotten. The inaccurate, incomplete and misleading nature of the data collected in the present more or less haphazard manner is well known to the Committee. It is satisfied and so we must continue with the inaccurate, incomplete and misleading facts as given to us.

Such is the official situation of this topically important question. The endeavour to get facts from which valid deductions may be made is not supported sufficiently by the Ministry of Health. This collecting of data seems to be regarded as a very minor part of the scheme about to be launched. The deductions from the collection to date have been few. Those that have been made, in particular the grouping of the Primary Avoidable Causes, need careful scrutiny before being accepted. They are for the greater part inaccurate. It is this unfortunate and unsatisfactory state which has caused me to make a more detailed

examination and analysis of some of the statements in the Interim Report.

References to other works:

1 Maternal Mortality. Dame Janet Campbell.

2 "Grammar of Science". K. Pearson.

3 The Manual of the International List of Causes of Death, 1926.

4 Registrar-General's Statistical Review, England and Wales, Part I, 1929.

5 "Maternal Mortality", Kinloch. 1928.

6 Appendix G. Interim Report. Official form attached herewith.

7 Appendix II. Form B. "Maternal Mortality". Kinloch.

8 The Causes and Prevention of Maternal Mortality. Henry Jellett, B.A., M.A., F.R.C.P.I.

9 Memo 156/M.C.W. Ministry of Health. Copy attached herewith.

10 The Inquiry Form actually issued by the Ministry of Health and in use for the purpose of Reports does not refer to "Duration of Pregnancy" as stated in the appendix of the Interim Report.

A GENERAL STATISTICAL REVIEW.

In the study of these vital statistics which are relevant to Maternal Mortality the striking feature is the steady rise of all the figures closely associated with this problem, while all the more general health rates are falling.

Can we apply Brownlee's periodicity hypothesis, so useful in a consideration of Epidemiology, and ascribe the falling birth rate to a secular oscillation in the germinal vitality? If we agreed that such was the factor, then the fall is only temporary, and when the "period" is over the birth rate will rise again. Currie[1] says that this hypothesis has "biological sanction and some historical support". While it simplifies the explanation of this declining rate it increases the difficulty of explaining one aspect at least of the rising Maternal Mortality. There must obviously be some close association between this and the confinements which are the "cause". If the birth rate is merely in a low period and there also is a periodicity curve for this Mortality, why should the one be rising and the other falling? It seems contrary to Nature's usual wisdom of balancing such conditions. The increasing deaths of women at childbearing ages reduce the number of potential births. Brownlee says that the lower birth rate is due to a fall in the "germinal vitality". If we accept this and associate

it with the previous conclusion, the two factors would together surely reduce the birth rate quicker than the present indications.

Hypotheses are often of great value but in this problem there are some factors, more or less obvious, which are of greater help in analysing the situation. At the moment we are only concerned with the subject as it affects the Maternal Mortality.

A study of "Marriages" must be helpful. Table VII shows that there was a rise in the mean age at marriage of "all brides" and all "spinster brides" from 1896 to about 1920. Since then the mean age has fallen. Considered with the lowered general death rate this fall means a longer married life and should mean more children. This is not true, however, in the practical result.

The very cause of part of the high maternal mortality may be at the same time the cause of the fall in the birth rate. We refer here in particular to Contraception and Abortion. Mercier[2] says that "as an historical fact, there has never been any nation, people or language . . . in which infanticide, the practice of abortion, or the limitation of conception, has not prevailed extensively. The three practices are complementary to one another, and where any of them is effectually forbidden, one or other of the remaining two will become efficient." Marie Stopes[3]

quotes some figure given by the American Journal of Obstetrics and Gynecology in which the authors estimate that some 80,000 criminal abortions are performed annually in New York. It is not stated how these figures were obtained. It naturally is an action which is kept dark by everybody concerned, and only where the result leads to illness or death does it become known to a wider circle. The practice of abortion is very prevalent. The very nature of the majority of methods of procuring this unnatural early expulsion of the contents of the uterus must lead to local inflammatory reactions which, in turn, must increase the risk of turning any subsequent physiological confinement into a pathological process. This may be fatal or lead to chronic invalidism. Therefore in this endeavour to bring a pregnancy to termination before the proper time the Birth Rate certainly, and probably the Maternal Mortality and Morbidity, if it could be calculated, are all affected. The Departmental Committee, in its Interim Report, does not agree with this suggestion, nor does it think that the practice of Contraception has any marked effect on a subsequent pregnancy or puerperium. Many of the witnesses, however, who gave evidence before the Committee hold that there is a close association. If the figures for New York are even approximately correct, and if they can be applied to London where social life and conditions are comparable, the result

would be astonishing. In 1929 there were 70,000 births in London, which is a birth rate of 15.8. If out of the borrowed, and problematic, 80,000 criminal abortions, we say that London was deprived of 20,000 births owing to these operations, the rate would have been over 20. It does seem a most likely deduction that these abortions materially lower the Birth Rate, directly and through their localised damage increase the Maternal Mortality and, in that way, indirectly affect the number of births.

In Table I this fall is shown to have been steady until 1919. This development was continuous in the late decades of the last century from a rate of over 30 in 1870. The after effects of the Great War were shown in the increased marriages. In pre-war days about 300,000 took place annually in England and Wales. During the War this fell. In 1919 the number rose sharply to about 370,000 and in 1920 to 380,000. These increases correspond with the rise in the Birth Rate in 1920 to the level at which it had been in 1910. From this high peak it has moved evenly, with a slight exception in 1928, to 16.3 in 1929 and again in 1930 from the reports just out.

Birth rate is reckoned as so many births per 1000 of the population. The population is increasing, the rate is decreasing. With these fewer births in proportion to the population we should have fewer deaths due to pregnancy and childbirth in the same comparison.

The alteration in the sex-age distribution of the population, to bring only women at child-bearing ages into the comparison, is too slight to affect the result. The Puerperal Mortality rate is increasing at a greater speed than that indicated by the figures when this decrease in the potential cause of this Mortality is considered.

It is of great value to compare the statistic for births and Puerperal Mortality in European countries. This has been done in Table II. The numerous difficulties in compiling such a table must be obvious, and likewise also the many unavoidable inaccuracies. Registration differs in various countries; some of them have changed their boundaries lately; some were and some were not affected by the War; and for some the figures have been difficult to obtain. Nevertheless the table sufficiently represents the true panorama of the situation. The order of the average birth rate does not suggest any solution. Italy at the top enjoys a very similar climate to France at the bottom. Holland is a close neighbour of Belgium, and their populations live very similar lives. The order in which these countries stand to-day is hardly different (d). The outstanding exception is England and Wales, where the present rate is the lowest recorded and brings her really to the bottom of the list. This represents the largest fall from the average. All the countries show

this decline. France has the smallest difference, having had a low rate for a number of years. In columns e and f, Puerperal Mortality figures have been collected. A comparison now suggests that where the birth rate is high the Puerperal Mortality is low. Every one of these European countries fits in with this suggestion. If this is a true deduction, the influence of abortion and contraception is once again stressed. Where births are numerous there are few Puerperal deaths. Where births are restricted these deaths are more numerous. What factors restrict birth? Brownlee's hypothesis, we have decided, is not the important factor. Contraception and abortion must certainly be considered. There is a very close association between these rates for Births and Puerperal Deaths.

The figures for some Colonies and the United States of America have been kept separate. The conditions there are absolutely different and comparisons with Europe would be fruitless. The results do not undermine the previous deductions. South Africa with the highest Birth Rate has the lowest average Puerperal Mortality in this group. They all have a higher mortality than those in "A" for the corresponding birth rates. That is to say in the case of Australia and Finland with Birth Rates of 25, the first has a Mortality of 5.5 and the latter only 3.1.

The General Death Rate decline is common knowledge,

as is shown in the Insurance Companies lowering their premiums. Speaking generally, men and women live to an older age. Everyone's chance of dying has been lowered somewhat, so that there should be fewer deaths of females at 15 - 45 age period. Fewer of these deaths mean more such women at childbearing ages alive and should mean more births. Some unnatural factor must be, however, at work to prevent them. Whenever an analysis is made of such statistics the result always leads to the proof that, left to itself, Nature would produce an increase in births but there is some influence at work, something unnatural, which overcomes this tendency and goes further in the opposite direction by reducing the rate.

The general rise in 1918, due to the Influenza Epidemic, is unfortunate. The effect is shown in the highest of the returns for that year in the Infantile Mortality Rate where the neo-natal deaths were less prominent than usual, showing the close connection of the rise to the epidemic. The true Puerperal Mortality figures were not affected which is what one would expect from the definition, death actually due to pregnancy or childbirth. The influence was, however, felt in the next year, when the rates rose to a record height probably due to pregnancies taking place in women who had been weakened by previous influenza. The most unfortunate consequence of this

epidemic was the tremendous height of the non-Puerperal Mortality, that is in deaths only associated with pregnancy. A rise was expected but not to the extent recorded. The total Maternal Mortality, being the addition of the non-Puerperal and the Puerperal Mortalities, consequently also ran beyond expectation, spoiling the comparison of 1918 and 1919 with other years.

The decline of the General Death Rate in this country has been a happy sequela to the organised Public Health schemes which have arisen in the last fifty years. We are apt to forget, at times, that State Medicine is a very recent institution. The crude death rate for 1846 - 1850 was over 23. The fall has by no means been steady but the trend has been definite and the latest 1930 figure of 11.4 for England and Wales is surely an achievement.

It is strange that with this general improvement, as seen in the figures just quoted and in the reduction in mortality from Tuberculosis and "Fevers", the Puerperal Mortality should be tending to get worse. This rise does seem to be working against Nature.

The most striking improvement is shown in the decline of the deaths of infants. The rate was over 150 until the end of the last century. In 1901 it was 151, by 1923 it had reached 69 and after various undulations it has now reached 64 for 1930. It cannot be

reduced much lower than this.

The Infantile Mortality is naturally closely associated with the Puerperal Mortality. This applies in particular to the neo-natal deaths. Neo-natal deaths are those taking place within the first month of independent existence. Obviously the cause of death is generally more directly due to some ante-natal or intra-uterine condition than the reaction to the new surroundings. It is this part of the Infantile Mortality Rate which has shown the least improvement. In 1927, between $^1/_3$ and $^1/_2$ of the deaths of infants took place within the first month, that is out of a total of 70, 30 died in the first 4 weeks, 15 in the next 2 months and the other 15 in the remaining 9 months. Surely there is some common factor which is helping to maintain these deaths chiefly due to some maternal influence and the deaths of mothers themselves in childbirth. An inquiry to connect these statistics would be most instructive.

In comparing factors the one outstanding difference is poverty and its allied conditions. The effect of this on the Infant's chance is very marked but it seems to have little or no influence in Puerperal Mortality. Sanitation has had a greater effect upon the lives of babies than upon parturient women. Confinements can take place, and do take place, under the poorest and the most unsanitary conditions without affecting the mother, but baby soon feels the effect.

Many factors have been suggested each having their particular supporters. A popular one is that where mothers have to go out to work - such as in the mill towns of Lancashire - the Infantile Mortality Rate is high due to this. The difficulty is raised when a comparison is made with districts, such as Cumberland and Northumberland, where there is little outside work for mothers and an equally high mortality among infants. Most people do think, however, that this factor of work, especially if heavy, does adversely affect the mother's health and chances in a confinement.

These three rates - Birth, General Death and Infantile Mortality - have been shown to be intimately associated with maternal deaths. All three have fallen during the last few decades whereas all the mortalities connected with pregnancy have shown a definite tendency to rise.

Sir George Newman, in the Interim Report, would like to contradict this statement. He says in one part that "the total Mortality among women during pregnancy and childbearing has remained almost stationary for many years." The words "almost stationary" are misleading. The Total Maternal Mortality for 1911 was 4.91 and for 1929 5.82, an increase of nearly 20%. Later he refers to this mortality being "on the whole, unimproved." His words are ill chosen, for the figures which he uses himself are conclusive

of the situation being, on the whole, worse, and far from being stationary, being progressively worse.

A comparison of Graphs I and II bring out these facts clearly. In the first the tendency to fall is obvious, although a and b have risen in 1929. Graphs give a true panorama. In the second there is only one section, C, which is almost stationary. These "other Puerperal Causes" include such cases as Eclampsia, Shock, Haemorrhage, Toxaemias, Embolism, Abortions and Extra Uterine Gestation. They do not, as a group, lend themselves so easily to improvement as Sepsis. They show a greater response to Surgical assistance and facilities and their rates are always higher in country districts with small and scattered communities. It is this one section only which may be said to show an inclination to be at a lower level for the last six years or so. A glance at the other sections of this graph shows that all these rates are going up in contradiction to Sir George Newman's statement. The rise is definite.

No matter how the statistics are juggled with the conclusions must be identical. In Table I, B, the results have been collected for quinquenniads. In the 1916 - 1920 group allowance must be made for the abnormal influenza years, 1918 and 1919. The mean for 1926 - 1929 is definitely the highest considered except for "other Puerperal causes."

It is not a pleasant fact to face that in spite

of our modern technique and our help from scientific knowledge the mothers of this country are, on the whole, definitely worse off. This is also in spite of the efforts of the Ministry of Health, its special department run by a highly trained staff, the efforts of local authorities with ante-natal and maternity schemes and all the legislation. Facts are facts, no matter how unpleasant they may be, and it is a pity to try to hide them. England and Wales are not unique. Woodbury[4] gives figures for the registration area of U.S.A., for 1900 and 1921. The Puerperal Sepsis Mortality rose from 5.7 to 6.8, and the Mortality for "other Puerperal causes" from 7.6 to 10.1, unlike our almost stationary conditions for this group.

References to other works:

[1]Text Book of Hygiene, Currie.

[2]"Crime and Insanity", Charles Mercier M.D.

[3]"Contraception", Marie Stopes, D.Sc., Ph.D.

[4]Publication No.158, Department of Labor, U.S.A.
Robert L. Woodbury.

See Tables I, VII, II.

" Graphs I, II.

CLASSIFICATION OF DEATHS.

The Committee have been supplied with a number of reports on Maternal Deaths. These reports are the result of the investigations which are carried out under the supervision of the Local Public Health Authorities in England and Wales. This routine was one of the first steps taken by the Special Departmental Committee to gain a knowledge of the facts of the situation.

For the purpose of the Interim Report the Committee considered the first 2000 cases investigated. It felt that this was a fair "sample" of all similar deaths in the country.

There are two classes into which they have been divided after careful analysis. The first comprises "Deaths directly due to Child Bearing". This collection corresponds to that which the Registrar-General calls "Total Puerperal Deaths". Class II is the collection in which the condition of pregnancy is accidental, the actual cause of death being some other condition, that is, as the Report puts it, the death is not "Primarily due to Pregnancy".

Class I is the most interesting and is dealt with fully elsewhere. It is a great pity, once again, that the Committee did not start this new "Science" with definitions of the terms to be used. Throughout the

Report no attention is paid to this elementary necessity. The result is that it is difficult to be certain what the Report intends to convey in many places. The term "Puerperal Mortality" is so well known that one would have expected that a learned group of people would have respected the generally accepted definition. If the term had been definitely placed by the Committee to mean something which it is not generally intended to there could have been an excuse, but at one time it means one and at another time a totally different group of deaths. There is no need for the Committee to be ambiguous. It is undesirable to make such an important subject seem foolish to the critical inquirer. The casual reader is going to gain wrong impressions and disseminate incorrect statements - the fault of the report. The critical reader is the one who is going to take the trouble to study the subject and he is going to be handicapped by this indefinite manner of presenting the facts of the case. The Committee cannot be congratulated.

This is how the situation is recorded. For a considerable time the terminology of deaths in all the references has been fixed and accepted. Just as the Committee has divided up its 2000 cases into two Classes, so have all similar deaths in the country been recorded by all other authorities under two

big groups. It is unfortunately muddling that the same terminology was not accepted and used by the specially appointed investigators. The classification* which has been in common use is quite simple. It has two main groups. The first is "Puerperal Deaths", that is "Deaths of Women classed to Pregnancy and Child-bearing". This is subdivided into those due to "Puerperal Sepsis", because this is such a definite and important sub-group, and to "other Puerperal Causes". The sum of these is generally called the "Total Puerperal Mortality". The second group is the "Non-Puerperal" cases, that is "Deaths of Women not classed to Pregnancy and Child-bearing but returned as associated therewith." The two groups together are termed the "Total Maternal Mortality". These terms have always conveyed definite meanings until the Interim Report, where their values have been disregarded.

The list of places where these terms have been misused would be tedious. On page 8 the mistake appears twice. The Report states that "the Total Maternal Mortality" for 1911-1915 was 4.0 per 1000 women giving birth to live children. On the next page the figure is given as 5.02, whereas 4.03 is given there for the "Total Puerperal Mortality". Obviously it is the Committee's careless manner of scientific writing. The "Total Maternal Mortality" mentioned

*See Table.I.

on page 8 is really meant to be the "Total Puerperal Mortality".

This kind of mistake does lead to difficulties. After finding inaccurate figures, inaccurate calculations, inaccurate deductions and inaccurate scientific terms one has little faith in accepting anything in the report without carefully checking the meaning, and the accuracy if a figure is mentioned.

Again, in giving statistics for various countries the Report states that, to give one of several such examples, Finland has a "Maternal Mortality Rate" of 3.1. From other sources, it is seen on Table II that Finland had an average "Puerperal Mortality Rate" of 3.6 before 1923, and 3.3 for 1920 - 1924[1]. "Maternal Mortality" is the addition of "Puerperal" plus "Non-Puerperal" cases. It seems, from the Report, that the part, 3.6 or 3.3, is greater than the whole, 3.1, for we can logically refute any violent change in the short period noted. The part cannot be greater than the whole. The Report is wrong. No doubt the term "Maternal Mortality" was incorrectly used. The error is proved by checking similar quotations by the Committee concerning countries where the figures are known. Why should the ordinary reader either be given all this trouble to find out what should have been written, or be misinformed in the one publication which should be plain and correct, a publication to

which those eager for knowledge will turn in this and in many other countries. It is a shame to advertise the inefficiency of our chosen leaders, the Committee, and the Ministry of Health.

One more example of this disregard for the accepted meanings of the "Maternal" terminology. The Report says that in 1928 10.3 of the "total Maternal deaths" were due to abortions. As there were 3710 "total Maternal deaths" in 1928 there should have been, according to the findings of the Committee, 382 abortions. A close scrutiny of all the available data only produces a maximum of 358, including 57 "criminal abortions", the deaths from which are not classified under the Puerperal or Non-Puerperal headings.

It is of fundamental importance that definitions must be made and maintained. We must retain a distinction between "Total Puerperal", "Non-Puerperal" and "Total Maternal" deaths. They are three distinct collections.

The Committee thought that "Non-Puerperal Deaths" was not a sufficiently expressive title for Class II, which has been termed "Deaths not primarily due to Pregnancy." It covers the same set of cases. It is an unfortunate collection, for according to the Report it includes deaths "due to an independent disease, concurrent with pregnancy or childbirth, in which child bearing contributed to or accelerated death or

was present merely as an accident."

In some the pregnancy actually contributes to or accelerates death. Such deaths are very much akin to those in Class 1. These, therefore, must be considered together with the Puerperal Deaths as true risks of conception. They are both, in my opinion, equally directly due to the fact of conception. This can best be expressed in an example from a recent case of my own. The woman had Pulmonary Tuberculosis several years previously which became arrested after Sanatorium treatment. She married and became pregnant and died a few weeks after her confinement from a recently reactivated Tubercular condition. Her death would have been put into Class II if it had been in this investigation. This must be compared with, say, a case of Puerperal Sepsis dying also a week or so after delivery. Such a death would be put under Class I. Where is the fundamental difference? The only difference is the history of Tuberculosis. Without the pregnancy there certainly would not have been any Puerperal Sepsis and the chances are that there would have been no re-activation of the lesions in the lungs of the other case. The first case might have had a chronic inflammatory condition of her reproductive organs which was waiting for some "match" to set the condition alight. Without the pregnancy the inflammation would have remained chronic; however, the pregnancy turned it into an active case of Sepsis.

Such chronic conditions are much more likely to pass undetected than a lesion of the lung. The two cases are identical. Pregnancy was the determining factor, the primary cause, in spite of the definitions quoted. I feel that the case of Tuberculosis is out of place in a group where the death is said not to be due primarily to pregnancy. If you say that Tuberculosis was the primary cause, not the pregnancy, then, to be fair and logical, you should say that the chronic inflammation was the primary cause in the other case.

If Class II were confined to such closely allied deaths there would be little to disapprove of. The distinction between the two classes would be straightforward. Class II unfortunately has a further addition of cases in which the death is due to an independent disease, concurrent with pregnancy or childbirth, which was present merely as an accident. I might quote as an example the case of a pregnant woman who contracts Diphtheria and dies from the effects. Her death is put under Class II, and no distinction made between it and such cases as the example of Tuberculosis.

It does seem an unfair addition to this class. They are in no way akin to the other sections of Class II in which deaths are accelerated by or contributed to by the state of pregnancy, and likewise in no way akin to Class I. They are an unfair burden to the collection which otherwise has such a logical right

to a place here. They spoil the value of "Non-Puerperal Mortality", and "Total Maternal Mortality" figures. Therefore the value of quoting "Puerperal Mortality" is evident. Unfortunately this does not complete the picture for, taken alone, it would not indicate those important additions under Class II which are, as I have indicated, without doubt due to pregnancy.

Therefore the accepted terminology, and the similar system used by the Committee, ought to be revised. "Non-Puerperal" cases should show the distinction as I have suggested into "deaths contributed to or accelerated by pregnancy" and "deaths where pregnancy is merely an incident." This latter sub-group runs no greater risk of death through the maternal condition than for all women. It is this addition which has no reflection on the situation. The most unfortunate effect of these misplaced deaths is the unnecessary addition to the "Total Maternal Mortality". This figure should exclude any cases in which pregnancy is merely an incident. It is the figure most commonly quoted and it makes the deaths from "Maternal" causes seem greater than they really are. It is a well known and much paraded item of Medical or Social Statistics. The great majority of people who speak and write about Total Maternity Mortality believe that it only covers those deaths which are due to pregnancy or child-birth, either directly as in Class I or indirectly as is

suggested in the first sub-group of Class II. I have questioned this belief and tested the statement by inquiring from a medical man who had just delivered an address on the subject, from another medical man who is interested in the subject in a general way, and from a lay person who spends her time in helping charitable organisations and who often gives short addresses on kindred topics. In all three cases my statement that deaths merely associated with pregnancy, such as in my Diphtheria case, were included in Total Maternity Deaths, was denied until I produced proof and then it caused wonderment.

Here is a desired improvement which the Committee has not noticed or not thought to be of sufficient importance. We have gained much of our knowledge of how to regulate and treat "Fevers", for instance, from an accurate collection of data. It seems a fundamental necessity that statistics, to be of service, must be correct. It is equally certain that such figures should be so arranged into "series or sequences" which will lead to a true answer to the inquiry. This is Professor Pearson's second step in the process of evolving a "Scientific law" or deduction. The way all the deaths in Class II have been considered together without the obvious distinction between those which are accelerated by pregnancy and those in which pregnancy is an accidental incident prevents the

resulting figures from being used for a "scientific law" or "deduction" inasmuch as the total refers to two distinct conditions without any differentiation.

I might add a further condemnation of the accepted situation. All these Mortality Rates are calculated as "so many deaths per 1000 live births". It needs very little imagination to see that this may be attacked from two reasonable points of view. Firstly, these "live births" do not include "still-births". The calculation therefore becomes the result of "so many deaths from "Maternal" causes which have taken place during pregnancy or after an abortion or miscarriage or after the birth of a stillborn or live born baby per 1000 live births." In this way although a Maternal death may take place after a still-birth the death would go into the calculation but the birth would not be considered. When a comparison is made in such a way as for these rates it should be taken for granted that the deaths are compared with the complete collection of associated "causes", both types of births. As it is recorded now there are a number of deaths which are compared to a smaller collection of the associated births. This makes all these rates higher than they ought to be. For instance, in 1928 the Total Puerperal Mortality calculated in the usual manner is 4.42, but by taking the still births into consideration this is reduced to 4.25, a considerable

reduction. In the same way all these Mortality Rates are appreciably reduced by adopting the suggested manner of calculation. It is the result which tells the more truthful story.

From the second point of view the attack may come from the consideration of abortions. A Maternal death may result from such an accident without the birth of a still or live born baby. Here again the death would be considered but there would be no birth. This also increases the mortality rates out of their true value.

All these errors prevent the truth from being plainly evident. Instead of the rates giving an idea of what risk there is run by a woman becoming pregnant, they give the number of all maternal deaths per 1000 only of those pregnancies which terminate in a live birth.

This was a golden opportunity to change this jumble of half truths into some scientific facts. The Committee have failed to make or suggest any change or turn the chaos into intelligible reading. To those of us who know the true value of the figures there is little danger but much difficulty in making our deductions. To those who are not so well warned these figures are difficult to understand and dangerous to use. Meanwhile, through all these factors, we allow ourselves to be labelled and libelled with unnecessary and untrue high figures for our deaths in pregnancy and childbirth.

The Committee could have saved much of this.

References to other works:

[1] Protection of Motherhood (page 9).
Dame Janet Campbell.

See Table I.

PRIMARY AVOIDABLE FACTORS.

The Committee has analysed 2000 of the reports sent in. The broad division into two classes is discussed elsewhere. Class I includes all deaths "Directly due to Child Bearing". These have been divided into four Groups as shown in Table III. This division is fully discussed in the Interim Report and also in the Memorandum[1] issued in December 1930 together with a circular letter[2] from the Ministry of Health. In these this particular portion of the Interim Report is summarised. The mistakes of the Report are not corrected.

Group 2 is entitled "Cases in which no departure from established practice having a causal relationship to the death has been found." It numbers 660 which is 51% of 1286, the aggregate of Groups 1 and 2. The Report calls it 52%. This is one of many errors in simple arithmetic. They abound throughout these efforts of the Committee and Ministry of Health. Small errors, no doubt, but sufficient when repeated to cause a justified hesitation in accepting any statement without close scrutiny. It is the largest group and the most uncertain. The human element must be accepted even among practitioners. It is justifiable to believe that some, if not many, of these cases really ended fatally due to a "departure from

established practice." As the investigation into these deaths is not compulsory and the report is entirely the sum and substance of what the attendants are willing to divulge - except in the few cases which go to the Post Mortem table or to the Coroner - it is logical to suggest that some of the 660 would, if the investigation was more thorough, be drafted to other groups. The Committee realises this source of error as being due to "deficient information" and "that fuller reports following a more searching investigation might have led to the inclusion of many of these cases in Group 1." Having realised that the "valid deductions" are based on "deficient information" the Committee accepts them, and makes no effort to rectify them or suggestions for the better supply of information in the future!

Group 3 are "cases not strictly relevant to this part of the investigation, viz: Abortions and Extra-Uterine Gestation." The exclusion in such a wholesale manner of this group is surprising. Surely the investigation is to discover what percentage of cases of pregnancy and childbirth run a "normal" risk of dying directly due to the condition, in one section, and, in another section, indirectly because of some super-added illness which is merely associated with the pregnant condition of the woman. Further, this particular part of the investigation surely is intended to find out what percentage of the direct cases, the

true Puerperal Deaths, could have been avoided, as in Group 1, and in this manner for each of the groups. It is essential that the comparison of each group should be with the sum of all the groups. This inconsistent attitude of the Committee has led to a widespread misconception of the results of the investigation to date. It affects Group 3 in this way. Some of these Abortions are undoubtedly in their wrong class. Owing to various factors they have been recorded as natural abortions and under such conditions their position would be correct, they would be true Puerperal Deaths. We know, however, that many of them are probably "criminal" but the investigation has failed to discover this point. The Committee might have repeated here what they said about Group 2, that the information was deficient. The solution is to have better information. Even if some of these cases should be withdrawn from this Class when the total is considered for purposes of obtaining percentages of the Groups, it cannot be agreed that all abortions must be called "irrelevant", that is to say, not natural risks of pregnancy.

The exclusion of "Extra-Uterine Gestation" cases has no excuse whatsoever. If ever anyone wanted to describe the risks of pregnancy surely an abnormal site of gestation would be included. It is the one big original division into which pregnancies are divided. It is uncontrollable in its origin. When

it ends fatally it is the purest example of Puerperal Mortality, of a death directly due to an abnormal pregnancy. Who would, no matter how infrequent its occurrence, exclude it from a list of the risks of conception? Yet the Committee, for the purpose of statistics, has decided that such deaths must be classed with those due to abortions and entitled "irrelevant".

Group 4 is the "hot-pot" for those reports which are said to have given "deficient information" and which have not been placed in any of the other groups. It seems that if this group had included all the cases with "deficient information" it would have abstracted a considerable number from each of the other groups and, together with the 122 "insufficient" cases, formed the largest group in Class 1.

Group 1 is most important. In it we have the cases which gave a history of some important faulty link - a Primary Avoidable Factor - which led up to a fatal issue.

This group has been sub-divided under four headings. I have collected the available data and tabulated them in Table IV. In A^{I}, A^{II}, B, C and D, I have more or less closely followed the Interim Report. In X, Y and Z, of Table IV.A. these figures have been redistributed in a manner which more directly reflects the truth of the state of affairs.

A^{i} is the sub-heading for those cases in which the "Omission of Antinatal examination" was thought, when the Committee analysed the reports, to be the Primary Avoidable Cause of death. The patient was herself responsible in 109 cases, but in 48 cases the attendant, Doctor or Midwife, failed to advise or perform any such investigation.

A^{ii} is the sub-heading for "inadequacy of antenatal examination". I have not grouped A^{i} and A^{ii} together, as in the Report, because "Omission" and "Inadequacy" are such totally different faults.

The first sub-heading numbers 25% of Group 1, that is one quarter of the 626 cases in which there was a Primary Avoidable Factor. It numbers 10% of the whole of Class 1, that is one in ten of the 1596 deaths directly due to Child Bearing. It is worth analysing in such detail for only in that way can the disgraceful truth of the situation be fully realised. It is a pity that the Committee did not think such detailed deductions necessary.

The cases in which the attendant failed in this primary duty to a pregnant woman need no further comment. They are disgraceful episodes.

Many of the 109 cases of the patient's omission must be placed not as a failure in the duty of an individual Doctor or Midwife but as a gross failure of the profession as a whole. Many of these poor

women died because they were ignorant of the help which was theirs for the asking. Much has been said of the value of propaganda but in spite of all the official activities this weapon has been conspicuous by its absence. These 109 cases equal 17% of Group 1 and 7% of Class 1. The inference is that if propaganda had made the knowledge of the desirability and possibility of ante-natal care universal a large section of 7% of the Puerperal Deaths would have not taken place.

The collection under A^{ii} is a collection of professional mistakes just as grave as those under subheading B. The "Doctor, Midwife and Hospital" are responsible for 69 cases of inadequate ante-natal examinations. It is presumed that if the examinations had been adequate these lives might have been subsequently saved, and they amount to 11% of Group 1 or 4% of Class 1. It is astonishing to see that Hospitals with their highly specialised staffs and their innumerable extra facilities contributed towards nearly 30% of the deaths under A^{ii}. It shows what a high degree of skill is required for this very special examination.

Under the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930, the Medical Officer of an Ante-Natal centre "is required to have had special experience of practical midwifery

and ante-natal work". This is a most necessary regulation in view of the importance of this work, which is really the dominant factor in the whole Maternity Scheme.

The Committee, through the Ministry of Health, do not seem to realise this fact. In the Memorandum under review, in paragraph 6, the suggestion is made that each local Authority should draw up a list of "doctors practising in the area who are willing to undertake this service (ante-natal examinations) for uninsured women who engage midwives." It is one of the most surprising suggestions made. Any doctor can come on to the list, no matter what his qualifications are. It is no excuse or comparison to point out that the great majority of private practitioners practising among their daily mixed routine some maternity work have no special qualifications such as indicated in the Regulation of 1930 for the Medical Officer of a centre. They are private practitioners, and their association with their patients is like a private agreement. When, however, that doctor is on an official list from which some woman is asked to chose a name, and he is going to be compensated for his trouble by the Local Authority, it is only perpetuating the trouble due to inefficiency by not applying the standard required for the Centre. The suggestion really seems to be that each local Health Authority should run two distinct Ante-Natal Departments.

The one should be at the Centre under the charge of a person specially qualified for this special branch of midwifery. The other department should be for uninsured women who have not engaged a doctor but have "booked" with a midwife and who do not wish to attend the Centre. Such a person, according to this suggestion, should be given the services of a doctor freely chosen from a local list. This doctor should undertake the ante-natal care of the woman for the midwife who is going to attend the confinement. He need have no special experience in the work for which the Council is going to pay him. It is, without doubt, a most surprising suggestion. It does not reflect back upon the truth known in a general way and discovered in particular from the investigation. Far from making "practical use" of the "valid deductions", the result of the inquiry to date, the Committee is suggesting a routine which would lower the value of the Maternity scheme.

Considering A^{i} and A^{ii} together, as is done in the Report and Memorandum, the total number of deaths due to Omission or Inadequacy of ante-natal care is 226, which is equal to 36% of all the cases with Primary Avoidable Factors, or 14% of all the Puerperal Deaths. As a collection these fatalities seem to be the easiest to correct and prevent.

The Committee seem very anxious to consider the

figures of each heading, A, B, C and D, of Group 1 in relation to their selected total, the addition of Groups 1 and 2. It is this set of percentages which have been emphasised and repeated. They have been copied and repeated. The result is that these figures are quoted by those who are interested, but unfortunately they are incorrect and misleading. This is the way in which the information is actually put[3]. - This report is the result of an investigation into 2000 deaths of women in childbirth. "The Committee came to the conclusion that there were four primary avoidable causes in the train of events which led up to a fatal issue. First was an absence of ante-natal care in 17% of the deaths; secondly, there were errors of judgment in practice or treatment by doctors or midwives in another 17%; thirdly, there was a lack of reasonable facilities available for effective medical care in 5% of the cases; and fourthly, in 9% there was negligence of the patient, or her friends, to adopt or carry out medical advice offered to them. Thus not less than 48% of the total deaths from childbirth into which inquiry was made seemed to the Committee to have been avoidable. In summary, the Committee found that of the causes of death brought to their notice NOT LESS THAN ONE-HALF were DIRECTLY PREVENTABLE under suitable conditions." This is the actual quotation which has gone around and which has

been used by many people who have not worried to check the statements and figures. It is inaccurate in every respect. The simple arithmetic is even faulty. Taken word for word the statement distinctly says that 2000 deaths were recorded and that "17% of the deaths" were due to absence of ante-natal care, that is sub-heading A^{i}. But there were 157 such cases recorded and 157 is not 17% of 2000, it is only 8%. The wording is definitely "17% of the deaths" and as only the 2000 deaths were mentioned, and that in the immediately preceding sentence, it is natural that anyone reading this Memorandum must say that 17% of the 2000 deaths, namely 340, were due to the "absence of ante-natal care." The most minute scrutiny of the Report reveals a maximum of only 157 cases due to "omission of ante-natal examination." Even if by "absence" the Ministry intended to mean "omission" and "inadequacy", indicating a very loose manner of wording and recording such important facts, the 17% or 340 is incorrect for heading A. Again a careful scrutiny reveals a maximum of 226 cases, or 11%, not 340, or 17%.

The Interim Report is much too long for most people to read. The summary in the Memorandum is the source of information for the great majority of interested people. The great majority must therefore become misinformed. This is what is happening. I have seen these unfortunate figures repeated in a newspaper so

that the public, if the paper is believed, will learn that 17% of Maternal Deaths could have been avoided by going to an Ante-Natal Centre!!!

Under each heading the same degree of inaccuracy is recorded. For B it is said to have been another 340 cases against only 224 recorded. For C it works out at 100 cases with only 64 discovered, and for D, 180 against the recorded 112. Put in its own way it quotes 17% for 11%, 5% for 3% and 9% for 6%. All incorrect.

In italics the statement records that not less than one-half of the "cases of death brought to their notice" were directly preventable. It is evidently an important statement because of the italics. It is a pity that special attention should have been attracted to the biggest error in a series of terrible mistakes. Half the cases brought to notice means half of 2000, which is 1000. There is no mention of any other gross collection of cases except the 2000. Anyone reading the statement would be led to believe that 1000 of the 2000 deaths investigated were directly preventable, they were avoidable! If one in every two Maternal Deaths are avoidable the Medical Profession ought to be thoroughly ashamed. If such "facts" were true, it is time the Departmental Committee gave more attention to their inquiry and produced some more effective means of combatting the evil.

Fortunately this is just another "slip" on the part of the Ministry of Health. It must be, for the Interim Report defines Group 1 as "cases showing a Primary Avoidable Factor" and the number is 626. In none of the other groups are there Primary Avoidable Factors, so that only these 626 were "directly preventable". Now 626 is not 50% of 2000!!

Worse than seeing these wrong "facts" in newspapers is to hear them used by people, who ought to know better, in Medical lectures. Invariably the "information" is taken from the Memo 156/M.C.W. and the "facts" are passed on and on, and nobody checks the flow.

One can only conjecture how these mistakes have arisen. It seems an obvious, on working the figures backwards, that the Memo has used the phrases "the deaths" and "deaths brought to their notice" in a manner that no sane person would. In another part the Memo states that "in the remaining 52% of the records of death examined no preventable factor ...." These statements can leave no doubt about the comparison to the 2000. There is not the tiniest indication showing that the reference is to any collection of deaths other than this 2000, which is the only collection mentioned. There is nothing to indicate any doubt to the reader that these are the cases referred to. Except, as I have said, by working backwards it is impossible to correct the only valid impression

of the Memo from an inaccurate impression to a correct one. The damage has been done, as this publication has had a wide circulation.

It becomes, when closely investigated, likely that the "17% of the deaths" due to "absence of ante-natal care" was intended to mean 17% of the deaths in Groups 1 and 2 only. Even that calculation, 226 in 1286, works out at 18% to the nearest unit, which is the usual procedure, and not 17%. These little errors show how carelessly and with what lack of interest the Report and Memorandum were prepared.

Emphasis must be made that the Memo speaks of no other collection of deaths than the 2000. It never alludes to Groups 1 and 2 by name or numbers. It never describes how or why Groups 3 and 4 are not to be considered and it never announces that these groups are discarded in their calculations. The wording is definitely wrong and the information is definitely dangerous. Without an intimate knowledge of the Interim Report nobody would question the accuracy of the statement of the Ministry of Health; nobody would work backwards to find out what was really meant, but definitely put otherwise, by the quotations and figures used.

There is no excuse for the elimination of Groups 3 and 4. With the granted exception of some of the "abortions" in Group 3, the remaining cases are definitely "Deaths due to Child Bearing", true Puerperal

Deaths.

The consideration of all four groups together seems to be the only correct method of getting at the truth. I can quite see why the Committee or Ministry in the Memo did not use the total number of investigations, 2000, for purposes of comparison for A, B, C and D. I cannot understand why there was a failure to point this fact out and why "2000" was displayed so prominently and in such a misleading manner. The public want an answer to the inquiry which can be read easily and plainly understood. Such a statement as - "There was an omission of or inadequate ante-natal care in 226 cases, that is 14% of all the 1596 deaths directly due to pregnancy or childbirth" - would give an answer which would be easily read and plainly understood. Compare this suggested compilation with what was intended for the corresponding information in the Memo - "There was absence of ante-natal care in 17% of the deaths". "Absence" is inadequate for what it was intended to cover. The rest of the sentence is without merit as has been shown. If they wanted to use this "17%" they should not have spoken of "the deaths" but of "two selected groups, 1 and 2." That would have given the quotation its true value, a very low value. It would have exposed the fact that the 17% for A, 17% for B, 5% for C and 9% for D, were really percentages of a selected collection of cases covered

by Groups 1 and 2, and not percentages of all the Puerperal Deaths nor of all "the deaths" investigated, as stated so definitely. This exposure would have saved the Memo from its worst blunder when it intimated that half of the cases brought to the notice of the Committee were directly preventable. Nothing could be plainer. No statement was ever more inaccurate. There were 2000 cases brought to notice and the Committee found that 626 might have been prevented. Why should the public be so misled into thinking that one half of these 2000 deaths could have been saved when these cases showing a Primary Avoidable Factor numbered only 626, which is less than a third of "the deaths", and less than 40% of the deaths truly due to pregnancy or childbirth? If the inaccuracies are deliberate for the purpose of propaganda I can only say that propaganda built on such an unsound foundation and using such poor bricks cannot succeed. If the inaccuracies are accidental, the Ministry of Health and Committee cannot be congratulated on their efforts which have misled the great majority of readers and the greater circle to whom the incorrect information has been passed on.

I do not think that the headings A, B, C and D are the most suitable and expressive which could have been chosen. It has already been pointed out that the collecting under one heading, A, of A^1,

"Omissions" and A^{ii}, "Inadequacy" is bad in principle because they are very distinct "Factors". Table V is my effort to analyse in detail the 626 cases showing some Primary Avoidable Factor.

This table seems to me to answer the questions - "What were the Avoidable Factors?" and "Who were responsible for the failures?". These are two important questions which should be answered, for their replies will indicate in a broad manner what to avoid or what to do and whom to approach for the particular effort.

Section X is for all cases showing some fault of the attendant and it has been sub-divided into the three types of attendants - Doctors, Midwives and Hospitals. These are further divided into the headings of A^{i}, A^{ii} and B of the previous table so that each kind of "Fault" can be placed at the door of the correct "type" of attendant. The totals in both directions and the percentages they represent can be "easily read" and "plainly understood". The Section as a whole is a logical collection. It indicates the degree of incompetence among the various units of the "Profession". It equals over 50% of all Group 1, the "avoidable" cases; over 20% of Class 1, the Puerperal Deaths; and 17% of "all deaths" investigated. It is the largest Section. Would it be wise to let the public know that half of all the cases of Puerperal

Deaths which look as if they could have been avoided were due to the "Faults of Doctor, Midwife or Hospital"? It is the truth but not as pleasant as the deductions and statements contained in the official publications. It is not an unreasonable method of collection, for each and every one of the items gathered under the Section are genuine "Faults" of the three types of attendants.

Section Y is a collection of the 109 cases from A^i, where the patient failed to have ante-natal examination in spite of it having been advised, and of the 112 cases, D, of "Negligence of patient or her friends." These two sub-sections seem naturally related and they convey, in my opinion, the same type of "Fault". Y numbers 221, equalling about one third of Group 1, about one seventh of Class 1, and one ninth of "all deaths".

Section Z is identical with heading C, but I have called it "Faults in the Administrative Scheme." It is a collection which partly reflects on the "Profession" which should have a better Maternity Organisation.

The lesson from Section X is that the attendants are at fault in too many cases. All three "types" need a revival in their conscience, knowledge and skill. It is not sufficient to look ahead and be interested only in the training of students who are going to serve the next generation. Something must be done for the

present generation among the present attendants. The Committee seems very satisfied with the future. It does not appear to realise that more than half of the deaths among "avoidable" cases are as shown in Section X, and that this is a state of affairs not only of yesterday but of to-day and to-morrow. The effect of the better training of students is not going to be felt for many years, not until their number predominates in the profession. Meanwhile this unfortunate section of "avoidable" cases is to continue unabated and unattended to a large extent.

Section Y points to the great need of propaganda. The whole profession, that is to say all branches of workers in "Medicine", must work with the object of making every pregnant woman know the details of the Maternity Scheme which is available and in which she has a right to participate. Sir George Newman, in his Annual Report for 1917, said that "much of the suffering entailed in maternity, much of the damage to the life and health of women and children would be got rid of, if women married with some knowledge of what lay before them . . . " It almost seems that we cannot start this propaganda too early in the woman's life. She must be taught until the knowledge becomes fixed and until she appreciates the necessity. No woman should ever be able to say that she did not know the meaning of, the value of, and the way of obtaining ante-natal care.

No woman should ever neglect the advice given through prejudice or ignorance. She must be taught.

Section Z encompasses the faults of the Administrators, from the Ministry of Health down to the most humble Assistant Medical Officer of Health. It includes death primarily due to the unsuitable environment for a confinement. The lesson is that the Scheme must be overhauled to guard against these possible sources of danger in confinements, and the recommendations of the Committee should, if carried out, do much to lower the figures for this Section.

References to other works:

[1] Memo. 156/M.C.W. Dec. 1930. Copy attached herewith.

[2] Circular 1167 M. of H. Dec. 11th 1930.

[3] Memo. 156/M.C.W. Paragraph 1.

See Tables III, IV, IVA.

AGE GROUPS FOR FERTILITY AND PUERPERAL RISKS.

(A discussion on Tables V, VI and VII, and Graph IV.)

It would be of great value to know the age distribution of all mothers at each confinement every year. Such information would enable us to apprize our detailed knowledge of Maternal Mortality to a greater extent. A death certificate must state how old a patient was, but the age of a mother registering a birth is not required. This is an unfortunate omission in our registration routine. Without knowing the fertility age distribution it is impossible to calculate the puerperal risk - that is the chance of dying due to pregnancy or childbirth - in any age group. The risk markedly varies with different ages.

Dr. Kinloch[1], the Medical Officer of Health for Aberdeen, and some assistants made an extensive investigation during 1924 of all births in that area. It was part of a routine inquiry into Maternal Mortality started by Professor Hay in 1917. This investigation was a pioneer effort to gather facts concerning, and to seek a remedy for, the prevailing high rate of death among parturient women. It preceded the wider national work undertaken by the Scottish Departmental Committee on Puerperal Morbidity and Mortality, which sat in 1923 and reported in 1924, and the corresponding Committee constituted

in 1928 in England. It preceded the numerous reports and recommendations which have been made by the Ministry of Health - Dame Janet Campbell's "Maternal Mortality" (1924), her "Protection of Motherhood" (1928), Circulars 517, 722, 888, 934, 971 and Memo 156 - by many years, and yet the routine seems to have missed very little in thoroughness of the latest suggestions and methods.

The system initiated by Professor Hay had the co-operation of every link in the Public Service. The Registrars made special daily reports. Deaths in all cases of Puerperal Sepsis, in cases of pregnancy, whether actually stated or implied, and deaths within four weeks after childbirth were noted and followed up. The Birth Registration was watched to check these figures. The Maternity and Child Welfare department was used to full advantage. The health visitors being constantly in close contact with the women, their aid was invaluable. The general practitioners and midwives helped to make the information complete. It is doubtful if many cases were missed. The form of inquiry in use in Aberdeen is a much better one than that, devised at a later date, now in use in England. With this thoroughness one can accept the various figures with a feeling of safety.

In 1924 Dr. Kinloch, feeling the need for a knowledge of the age distribution of all mothers at

childbirth, made a special investigation. He suggested that the proportion of confinements in each age group is steady and representative for the country as a whole. Judging by the thoroughness of his work as a whole we must accept his fertility age distribution as being correct for the country within a reasonable margin of error until a better or more universal set is provided.

Table V. "A", "C", and "F", are taken from Dr. Kinloch's report. The remainder of the table is an original analysis of the situation in Aberdeen based on these figures for 1924.

There were 37,984 confinements registered. "A" shows the division of these into the age groups of the mothers, and in "B" each group is expressed as a percentage of the total. "H" notes the descending order of fertility as shown by these percentages. The most fertile quinquennial period is between 25 - 29 years, during which time about 30% of all births take place. This corresponds with the information given in Table VII, where the mean age of all brides is about 27, and spinster brides, forming the great majority of the total, a year younger. It is interesting to note that the mean marriage age of "spinsters" and "all brides" has been steadily falling since 1918, and that for "all widow brides" steadily rising since 1919.

The quinquenniads on either side of "C" (Table V) are only slightly lower in their fruitfulness. When

these are considered together the fifteen years 20 - 34 account for nearly 80% of all births. During a similar time period, made up of the early 15 - 19 and the late 35 - 39 and 40 - 44 groups, about 20% of the births take place. The small number of confinements in the 15 - 19 age period is rather surprising when one remembers that 16% of all spinster marriages take place before 21, 40% between 21 and 24, and nearly 30% between 25 and 30 years. From these figures, which have been fairly constant for many years, it might be expected that this early 15 - 19 period would have a higher fertility rate. We must, however, remember that there are so many more marriages of widows in later age groups that they probably determine this seeming inconsistency. We can, therefore, look upon these valuable fertility statistics as being representative.

The study of deaths from puerperal causes in Aberdeen in the same year, 1924, is shown in "C", where the 252 cases are divided up into the age groups; "D" with each of these expressed as a percentage of the total, and "K" with the order in a descending scale of these gross figures. The comparison of this order with that of fertility shown in "H" is of interest. They correspond in sequence in the periods a, e, f and g. For b, c and d this balancing of the number of confinements and the number of Puerperal Deaths in age groups is comparable, although not in the same order. What it does show,

without a doubt, is that during the period 20 - 34 there is a very much larger number of births and Puerperal Deaths than for the twenty other years under consideration.

These Puerperal Deaths do not, however, express the degree of Puerperal Risk. These figures may even be misleading. This is where the special investigation of Dr. Kinloch into the age distribution of women at their confinement is of such particular value. It is the essential basis of the further analysis. Knowing the number of such women and the number of deaths in each group, the number of deaths per 1000 births, as shown in "F", can be recorded. As there are no figures available for confinement-age-distribution of the country as a whole, it is better, for the purpose of wider investigation, to compare the percentage of deaths and confinements in each age group, as is shown in "E". The first we can always obtain and for the second we can use the Aberdeen distribution. From this the "Puerperal Risk" is easily calculated for each group as a ratio to 100, the lowest risk. In this case it is c, followed closely by b, the descending order being shown in "I", while the actual ratios are tabulated in "G". The great value of Dr. Kinloch's confinement figures is now obvious.

It is of great interest to compare "C", the Puerperal Deaths, and "G", the Puerperal Risks, or more easily their sequences as expressed in "K" and "I". The highest

number of deaths occurred in d, the 30 - 34 quinquenniad, but this age period is not one with the highest risk; it is fourth in that order. The importance is that Puerperal Deaths in any age period must be compared to the number of confinements giving rise to them. By themselves the deaths do not necessarily if high indicate a high risk or vice versa. This is clearly demonstrated in this comparison. Whereas the descending number of deaths is in the order d, c, b, e, f, a and g, the descending order of risk is g, e, f, d, a, b and c. There is no resemblance between these two where g, for instance, is at opposite ends of the two scales. It makes more noticeable the value of Dr. Kinloch's work and the omission of a smiliar investigation on a wider scale by the Ministry of Health or the Department of Health for Scotland. In England the Ministry has had a special Maternal Mortality Section under Dame Janet Campbell since 1919. Numerous recommendations have been made but this most valuable item has not been considered sufficiently important. It is surely time that something practical was done.

A comparison of "H" and "I" shows the comforting truth that the age group c, 25 - 29 years, is the most fertile and has the lowest Puerperal Risk although it has the second highest number of deaths to its credit. There is also a comparable relationship in the age groups b, f and g, that is to say the fertility and risk in

each of these periods are each in corresponding sequence, as the one rises the other falls. In the age groups a, d and e, this association in the two scales is no longer present. The 15 - 19 period, for instance, is one of low fertility and low risk, unlike the periods of close comparison.

There are some surprising results of this analysis. Why should the young woman under 20, seldom completely developed and not at a fertile age and therefore not naturally prepared, have such a low Puerperal Risk? Why should a woman between 40 and 44 have a better chance of escaping this death than a younger and more naturally fit woman, as shown by her higher fertility rate, of 35 - 39? This fall in the risk after 39 is only for the next quinquenniad. After 44 there is a very sharp rise, making the fall very difficult to explain.

Kinloch seems to have missed this undulation in the text of his report. He stresses the rise of Puerperal Risk after 35 and points out that at that stage it is double the risk at 25 - 29. Leaving the subject at this point, as he does, without any further comments, he naturally gives the impression that after 35 the risk rate rises steadily. This, according to my table calculated from his own data, is an incorrect view, for Aberdeen, at any rate, in 1924. It is, however, correct for the country but he was only reporting upon the problem in Aberdeen.

Table VI has been compiled on the same lines as that for Aberdeen with a view to analyse the situation in England and Wales. In order to obtain a fair set of figures for Puerperal Deaths I have collected them for the six years 1924 - 1929. Surely this should eliminate any margin of error due to any marked yearly deviations. The gross figures for each age group, and the totals for each year, are remarkably steady except for the sharp rise in the first age period. "X", the totals for these age periods, "Y", these totals worked to a percentage, "Z", these percentages expressed as a relation to the fertility, "U", or expressed as a ratio to 100 units, and "V", the descending order of this Puerperal Risk, are all worked out in a similar manner to the corresponding items in Table V.

The importance of some knowledge of the confinement-age distribution is again obvious. As the Aberdeen figures are the only ones available, and as they have been shown to fit in more or less closely to other known facts, they must be accepted. The greatest number of deaths take place during the 25 - 29 period. This is third from the lowest risk when compared with the fertility figures. Without this comparison the temptation is to look upon these years as being most dangerous and that would be a very wrong conclusion. The same error would be born by saying that as the age group 45 - 49 had only 1.3% of all the deaths it was therefore

a safe age, when it really is the age of greatest risk. At that period a greater percentage of confinements are fatal than at any other age. The mortality risk is over three times greater then than for 15 - 24 and twice as great as the 25 - 34 age group. It is a simple way of looking at the problem. It is a necessary way. The answer to any woman's question - What risk do I run of dying due to pregnancy or childbirth? - must vary with her age. Although there are other factors, such as the number of pregnancies, the age factor is probably the most important. Until a more universal census of ages at confinements is made - the lead must be taken by the special Departmental Committees - this Puerperal Risk for each age group in this country can only be calculated approximately from the results in Aberdeen. While giving all due credit to these results, the application to the country as a whole is not satisfactory.

In comparing Tables V and VI it is interesting to note that the percentages of Puerperal Deaths are very similar in most periods as shown in "D" and "Y", proving how comparable the town's statistics are to those of England and Wales, and probably Scotland. Certainly c, d, e and g are practically identical. When the sequence of these percentages are compared in "K" and "W" the similarity is made even more obvious. In no period is the order more than a place away from the order of the other, and a, f and g

occupy the same places in both sequences.

The Puerperal Risks are best compared in "I" and "V". Although only three of the periods, b, d and g, are identical in their places, a is interchanged with c and e with f, making the two orders very close. "V" is further interesting in that the scale ascends from the lowest risk during the 15 - 19 period gradually and evenly throughout to the greatest risk at 45 - 49.

The outstanding discoveries from these analyses are that the 25 - 29 age group is the most fertile and it accounts for the highest number of Puerperal Deaths. It is not, however, an age of great risk, the risk being only slightly higher than the lowest, which is during the two preceding quinquenniads. The succeeding periods jump steeply up in the risk ratio, the rise being most marked after 30 - 34. These features are best seen on Graph IV which I have plotted from the results shown in Tables V and VI.

The 45 - 49 period has the highest risk but the lowest fertility and percentage of Puerperal Deaths. The graph accentuates the fallacy of regarding the percentage of deaths in any group as the indication of risk. After c, "Y" falls and "U" rises, cutting each other just after e, so that the one is no indication of the other. The fertilify (B) and Mortality (Y) curves are very similar, as was stated in the discussion on the tables.

One cannot help repeating that without National age-confinement figures, giving fertility in age periods, the fundamental statistics of Maternal Mortality are very incomplete. Sir George Newman has advocated that we should "begin at the beginning" when investigating this problem. An investigation producing such a set of figures should have been his suggestion before now; if not from him, it should have come from those working under him in this special work. In England for twelve years a special section of the Ministry of Health has been working. Our Puerperal Mortality rate is higher to-day than it was then. We are no nearer the solution of the causes. We have lately been given much advice about prevention, but all the practical efforts which have been suggested may be likened to the roof of a house which requires some work at its foundations. I wish Sir George Newman would enable us to "begin at the beginning".

References to other works:

[1] Maternal Mortality 1928,
Kinloch, Smith and Stephen.

See Tables V, VI, VII.

" Graph IV.

COMMON CAUSES OF DEATH AMONG FEMALES.

Table VIII has been drawn up to compare in an easy manner the Puerperal Deaths with the gross numbers of the most common causes of death among women. The figures for "all ages" may be misleading and are not strictly comparable to the Puerperal Causes which can take place at child-bearing ages only. Therefore, to make the comparisons under the fairest conditions, I have tabulated the information for "15 - 45 years".

A study of the returns for this child-bearing age group is full of interest. "Respiratory Tuberculosis" is the cause of the largest number of deaths by a wide margin. It is a disease which provides fewer and fewer deaths each year and in which the improvement has been most marked. "Circulatory Diseases" is the next largest group, but the margin of lead is not so great. "Other Respiratory Diseases" show a figure larger than, but very approximate to, the "Puerperal State". The same remarks can be applied to "Total Cancer".

So much has been written and said about Cancer lately that one would be justified in believing that the Mortality is much higher than reported on this table. If as much interest had been taken in the study of the Puerperal cases as has been done over Cancer, remembering that they produce about the same

number of deaths in this age group, we might have managed by now to get the subject out of the deep rut, and to produce some data upon which we could have based the future management of the problem.

Cancer of the Female Genital organs and of the Breast together are well below the maternal figures. They are, from a physiological point of view, very intimately connected with the active life of most females at this age. Evidently they remain physiological during this time and become pathological at a later date. That is to say that while these parts are kept actively fulfilling their normal functions cancer does not develop. This maternal activity precludes the probability of Cancer but its main result is the cause of Puerperal Mortality.

Another closely associated condition is "Non-syphilitic diseases of the Genito-Urinary System". This group does not produce as many deaths. Some deaths placed to the "Puerperal State" would probably have come under this Genito-Urinary heading at a later date if pregnancy had not hastened the event.

Only deaths from "Respiratory Tuberculosis", "Circulatory Diseases" and "Other Respiratory Diseases", and possibly "Total Cancer", exceed the Maternal returns.

The order then tails off with "Genito-Urinary System" deaths and those from "Diseases of Digestion"

almost equal. This is not the age for a fatal termination to digestive disturbances. Less than a sixth of all these deaths occur in the 30 years between 15 - 45, leaving five-sixths for the other years of life.

The rest of the table requires no comment, except to draw attention to Enteric. Not many years ago this had a very high mortality. Year by year it has fallen in response to the improvement of Sanitation, in its widest sense. In 1913 in the United States of America, Fitzgerald, quoting Meigs, says that "the death rate per 100,000 of population of all conditions caused by childbirth was a little lower than that from Typhoid Fever. This rate would have been almost quadrupled if only the group of the population which can be affected, women of child-bearing ages, were considered." In 1879 the mortality of Typhoid per million population of London was 220; by 1919 it had fallen to 20, and now it is proving to be the "vanishing disease", so called by Sedgewick, in all civilized countries.

When Typhoid threatened the country the Authorities woke up and stamped it out. They might take a lesson concerning Maternal Mortality from that old chapter.

See Table VIII.

ABORTION.

References to this important factor in the consideration of our subject have been made frequently throughout this criticism. It is one of the most difficult elements to assess and to deal with. The Committee has not endeavoured to face the problem. It has withdrawn from a difficult, but necessary, task and covered its retreat by stating that the Members are of opinion that "although abortion plays a serious and regrettable part in the production of puerperal sepsis, and therefore in the causation of Maternal morbidity and death, they are unable to find evidence to support the opinion that an increase of deaths from abortion, of sufficient magnitude materially to affect the material death rate, has taken place in recent years."

The majority of the authorities who gave evidence before the Committee differed from this attitude. They felt that intentional abortions were on the increase to a marked extent, and that the fact was generally successfully concealed and therefore not put on the Death Certificate in fatal endings. Even where the interference did not result in death at the time, many of these experts felt that the risk of an unfortunate ending to some subsequent pregnancy was increased. The Committee did not agree in either statement.

Table IX is an endeavour to show that this criminal practice is on the increase . The deduction can only be made by considering other conditions which may be looked upon as closely allied. Such conditions are tabulated by the Registrar-General under two headings: "Deaths from Purulent Infection and Septicaemia"[1] and "Deaths from Peritonitis of unstated origin"[2]. Vaccinia Deaths were included in the first group in 1921 by the Registrar-General, but a wiser course is now adopted for these few cases and they go to "other infectious diseases."

The attempts at expelling an unwanted foetus are either by mechanical or chemical means. The result may be successful or unsuccessful. In the first case after the emptying of the uterus there may be a rapid and complete recovery and nothing more ever happen to reflect back on the event. That is not always the picture. The woman may become infected after a successful or unsuccessful attempt and develop some septicaemia or internal inflammatory condition. If the abortion is known or suspected the correct diagnosis can be easily arrived at, and the death placed under its proper heading. Frequently the condition of pregnancy and abortion have been well hidden. The diagnosis then is difficult. Without anything to suggest the recent pregnancy the most common categories into which the death ought to be put would be either

of the two headings mentioned, the "Septicaemia" or "Peritonitis". Both of these are common pathological sequences of criminal abortions.

If, therefore, there is an increase in this type of abortion, the effect should be felt indirectly in the increase of either or both of these groups.

The Interim Report has drawn up a table* showing the returns for these deaths from "Septicaemia" and "Peritonitis" in females. The arithmetic is not accurate in places but this is a common fault throughout the Report. The comment concerning the table is that "the Registrar-General's figures for the last ten years show no progressive increase in deaths under this heading". (I presume this should be "these headings"). The table given shows an increase in the first group from 177 to 287 and in the other group practically a stationary condition. That is an increase of 111 deaths in 1928 over the 177 deaths in 1919. There has been an increase each year without a break since 1923. In spite of this, the Committee thinks that this steady increase of over 60% in 10 years is well described in the Report by the statement that it showed "no progressive increase in deaths"!!' There is no foundation for this inaccurate deduction, for this misleading contradiction of an obvious fact. It is difficult to decide whether such a mistake is due to a natural inability to subtract 177 from 287 and

* Page 44.

make a logical deduction or whether the mistake is deliberate, in spite of the facts, and merely made to back up the Committee's disagreement with the authorities who have given evidence over the question of the suggested increase in abortions.

In table IX I have put the case more fully for the ten years in question, and corrected the many mistakes. "A" shows the fall in the deaths of women. It has not been steady, but taken over a longer period it is remarkable. "B" is the "Septicaemia" deaths for women and "C" for men. When the figures for "B" are divided into the two quinquenniads the increase in the last five years is once again definitely established. "C" has been added to act as a "control". It also shows an increase but instead of the 60% seen in "B" it has only gone up 30% and that in an irregular manner. Therefore it is reasonable to suggest that there is some additional increasingly effective factor at work which is affecting women to a greater extent or entirely. We can further logically say that the most likely "entire" cause is abortion. "D" is the percentage of the "Septicaemia" cases to the total female deaths. In the table prepared by the Committee in ten calculations for these percentages there are four mistakes in the arithmetic, Whenever I see any figures quoted by the Ministry of Health I check them. In the short table under discussion there are 9 errors,

9 disgraces. Surely with the staff which the Ministry has somebody can be found who can work out a simple percentage, and somebody else who can find time to check the result.

"D" shows that this percentage has risen from .07 to .13, almost double. This 85% increase is recorded in the Report as being a "slight increase". What would a fair or a good increase be like?

"E" and "F" are the deaths in the "Peritonitis" group for females and males respectively. The "males" have been recorded to show that deaths in this mortality group are rapidly falling except among women, where the numbers are stationary. In 1919 there were 54% more male deaths than in 1928. If the 1920 results are taken, from which date the decline has been almost steady, there were 85% more deaths than in 1928. Surely the factors causing this more or less steady drop in these male deaths should have had some effect on women. The fact that there has been no sharing of this improvement can reasonably be interpreted that the improving factors are common to men and women and are active. They would reduce the number of deaths among women each year but there is some unfavourable factor present, and this factor is increasing year by year in order to neutralise the increasing "improving elements" and in such a manner retain a stationary condition. What is this "unfavourable factor" more

likely to be than some interference internally which leads to peritonitis directly or from the spread of neighbouring inflammation? And what is this more likely to be than abortions? One has to take into consideration the general trend of this type of death in order to appreciate that the apparent arrest of these female deaths is really an increase when compared to the associated marked drop in deaths among men.

"H" and "I", the totals, repeat, when analysed, the previous findings. There is some factor which is increasing both the "Septicaemia" and "Peritonitis" deaths in women, and the most likely factor is interference with a view to abortion. These figures prove, to my mind, that the contention of the expert witnesses that criminal abortions are on the increase is the correct view, and that the Committee is wrong almost wilfully because of the miscalculated data and misleading deductions.

"J" "K" "L" and "M" are self-explanatory. They produce a more detailed story confined to women of childbearing years, which period is also the age of abortions. They definitely show that there is an alarming increase in some active factor - seen even to greater advantage here than in "B" - which I contend must be associated with attempted abortions.

Graph III is my effort to show, at a glance,

the movements of "A", "B" and "D". "D" is the important line. No matter how these figures are approached the increase is evident, and the deduction that it is due to abortions is logical.

The Committee should have agreed that there was this increase, and they should have made some endeavour to tackle the problem. If the Members do not think that abortions are increasing or are of sufficient magnitude to materially affect the Maternal Death Rate, they should find out what factor is increasing the deaths in the two associated groups we have just been discussing. It is something which is only seen in women, not in men. Its result is inflammatory in nature. It would be an important factor to discover. Until it is proved otherwise I shall regard it as interference for the purpose of expelling an unwanted foetus. That it is on the increase is without doubt from the statistics produced and from a close clinical contact with the people concerned.

References to other works:

[1] International List, No.41.

[2] International List, No.126.

See Table IX. Graph III.

SUMMARY AND CONCLUSION.

I set out to criticise the "Interim Report" or the authors, the Special Departmental Committee, or the sponsors, the officials of the Ministry of Health. They have all made themselves easy targets for my adverse analysis.

The special section of the Ministry of Health which was formed in 1919 has hardly made itself known. Judging by results, it has not made its valuable presence felt. Much has been written but little has been done.

The Departmental Committee was appointed in 1928. It includes some of the foremost scientists interested in the subject of Maternal Mortality. It interviewed an equally brilliant set of people who were invited to give their views. In spite of this galaxy the achievements to date are noteworthy but of limited value.

There are two such achievements. The one is the institution of the voluntary inquiry into every Maternal death. I have shown how this inquiry is handicapped by a number of unfortunate incidentals. The official form* is unsuitable, ambiguous and incorrect. Some of the most important facts, such as the stage of the pregnancy, is not requested. Some of the questions are worded and arranged in

* Attached to attend. of Tables and Graphs.

such an undecided manner that the majority of informers fill up these places so that the information is doubtful, owing to their uncertainty of what was wanted. I speak from experience. I get two reports at least on each death from different sources. As often as not the answers in these ambiguous places differ, showing what value can be placed upon these statistics as a whole without a great amount of extra trouble.

This inquiry was to be the fountain of all knowledge on the subject. The Interim Report, which is the second achievement, was based largely upon the considered results of the accumulated information. Sir George Newman* says that the Report contains "comparatively little which is entirely original." He then adds that as a result of the Report "we now know more or less exactly where the shoe pinches." Unconsciously he is emphasising the truth. The element of originality is sadly lacking. I would suggest, with apologies, that a few more tables - with correct figures - would have been interesting and instructive. The failure to make a confinement-age group table has been noted. This would have led to an age-group risk table, surely of value in helping to decide what risk a particular woman is going to run by becoming pregnant. Some further statistics about abortions would have helped in that problem. Many important points have been alluded to or briefly

* On the state of the Public Health, 1929.

noted in the Report and then dropped. For instance, in speaking of the ages of the 758 primiparae cases, it would have taken up no more space to give the ages of all the cases divided into age groups for various numbers of pregnancies. Again, on the next page, there are two tables giving the detail causation of deaths, the first for 476 unselected primiparal and the second for 142 multiparal. The question of why these "unselected" cases were selected from the 2000 remains unanswered. Surely the totals would have given a more correct set of percentages! Further, it is suggested, by the authors, that these two tables should be compared. In order to make this comparison easier the tables have been drawn up separately, instead of in one common tabulation. The order of the deaths has not been considered of any value, so that one has to look up and down instead of being able to compare line by line. Furthermore the terminology is not quite alike, so that one fears in comparing two figures which may be due to the same "causes" of death that, because of the terminology being different, the figures may not be truly comparable in spite of the invitation to so use them. Is "Eclampsia, Toxaemia, Nephritis etc" of the one table really comparable to "Eclampsia, Toxaemia, etc" of the other? Does the "Nephritis" of the one spoil the comparison?

Sir George Newman is correct. The Report shows

* Interim Report, page 34.

little originality. To say that we now know where the shoe pinches is also correct, but not in the way he intended. We now know that the statistics in our possession, gathered through the efforts of the Departmental Committee, are inadequate, and that the deductions from them are incorrect because of their inadequacy and because of the manner in which they have been analysed. The pinching shoe points to the place where detailed and correct data, with carefully considered deductions, should have been. Sir George Newman advised investigators into the subject to "begin at the beginning", but he has not impressed this sermon on the Committee.

To me, in spite of the official activities, the situation is no better now than in 1919 when the Ministry of Health definitely began to take an interest in the problem. If we judge these numerous efforts by the statistical results, I think we must logically conclude that the situation is even worse. This has been proved in the tables I have drawn up. Truth is of more value in creating a greater interest than the misleading statements by the Authorities that there has been slight improvement. That is the past and present. Is the future much brighter? What is being done?

The Committee quite obviously does not place any

importance upon the value of some additional and some more accurate information. The Members evidently do not feel that such an accumulation would help to point the way out of the mire. They have lost a wonderful opportunity of acquiring a most valuable set of statistics. As it is what has been gathered is, as they themselves agree, inaccurate to a large extent. It is upon this inaccurate information that the Report has been made.

To go into the subject of the recommendations of the Committee would be to open up an entirely new and lengthy discussion. I have criticised the proposal to allow ante-natal work under Local Authorities to be done by people without any special training in spite of the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930. I could criticise each other suggestion which has been made. For instance, the Report recommends that a "qualified midwife should be available for every confinement, whether she acts as a midwife in charge, or as a maternity nurse under the direction of a doctor." It is further suggested that where a woman who has engaged a doctor but is unable to pay the fee of a midwife to act as a maternity nurse as well, "the Local Authority should encourage" this arrangement "by contributing to the fee of the midwife." It is a proposal which has not been carefully weighed and

worded. The majority - I can hardly think of an exception in any Urban area - of women who employ a doctor ought not to be considered in any scheme which is supported by the public money in this manner. This free midwife-nurse-assistant should only be offered for poor people, and they would be better in institutions. It should therefore only affect a very small proportion of the cases. Will it make a marked impression on the Maternal Mortality?

There is another consideration. Will a doctor run a risk of losing his patient? The situation may be argued in this way. Suppose the doctor has been engaged and the Local Authority has guaranteed the fees of a midwife. The mother may have an easy delivery. Most of the work may even be done by the midwife. She certainly will be in closer contact with the patient and for a longer time than the doctor. It seems to me that when the woman becomes pregnant again she might easily say to herself - "I paid the doctor £5 and he did nothing very much for it. That nurse will, so I'm told, do it for £2. If I can get her I'll have her this time." That is the possibility which the private practitioner has to face and which will not make him over anxious to co-operate. There are ways of getting round this difficulty, but they have not been put forward by the Committee.

While some "clinical" changes are necessary, it

would have been better to first try and dig to the very foundations and find out some fundamental truths and then use these upon which to build a stronger house.

Suggestions towards a more detailed knowledge have been made throughout this criticism. All information should be gained through compulsory measures, as is done in, say, infectious diseases, and be paid for and accuracy be insisted upon. That all deaths of women dying in pregnancy or at childbirth or within a reasonable time should be fully investigated is the first essential. Such a movement is now afoot in London to get the necessary legal power through the London County Council. The proposal is that all such deaths should be examined by an independent expert, and that a post mortem and an inquest should be performed in all cases where there is the slightest doubt. The performance of all this inquiry by an outside, independent person is necessary for the family doctor's own benefit. He can take up the attitude that his hand has been forced by law. We hope to get such powers in London. If the Committee had any real foresight they would have endeavoured to move in this necessary direction for the whole country. The additional expense is not worth considering, for even at the high figure of £5 a case, the investigation into say 4000 cases would be £20,000 a year for England and Wales.

We need to start our clinical schemes by watching the marriage register. Every newly married woman should be visited or communicated with, as is done for every newly born baby. The earlier visit is probably more important. The object then should be to give the potential mother all the necessary information on the value of ante-natal supervision and, if needed, the places where such help is obtainable. "Begin at the beginning".

Let the Committee begin again and provide us with better weapons to fight the good fight.

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TABLE I

GENERAL STATISTICS

Original Table Co[illegible] from various official sources.

SEE GRAPHS I and II.

YEAR	LIVE BIRTHS REGISTERED	BIRTH RATE	GENERAL DEATH RATE	INFANTILE MORTALITY	PUERPERAL DEATHS — DEATHS OF WOMEN CLASSED TO PREGNANCY AND CHILD-BEARING. [CLASS I]				NON PUERPERAL DEATHS — MERELY ASSOCIATED WITH PREGNANCY AND CHILD-BEARING [CLASS II]		TOTAL MATERNAL DEATHS — DEATHS DUE TO AND ASSOCIATED WITH PREGNANCY AND CHILD-BEARING	
					NUMBER OF DEATHS	RATE PER 1000 LIVE BIRTHS REGISTERED: PUERPERAL SEPSIS	RATE PER 1000 LIVE BIRTHS REGISTERED: OTHER PUERPERAL CAUSES	RATE PER 1000 LIVE BIRTHS REGISTERED: TOTAL PUERPERAL MORTALITY	NUMBER OF DEATHS	NON-PUERPERAL RATE PER 1000 LIVE BIRTHS REGISTERED	TOTAL NUMBER OF DEATHS	TOTAL MATERNAL MORTALITY PER 1000 LIVE BIRTHS REGISTERED
A 1911	881,138	24·4	14·6	129	3,413	1·43	2·44	3·87	909	1·04	4,322	4·91
1912	872,737	24·0	13·4	95	3,473	1·39	2·59	3·98	848	0·97	4,321	4·95
1913	881,890	24·1	13·8	109	3,492	1·26	2·70	3·96	803	0·91	4295	4·87
1914	879,096	23·8	14·0	104	3,667	1·55	2·62	4·17	831	0·95	4498	5·12
1915	814,614	21·8	15·7	106	3,408	1·47	2·71	4·18	881	1·09	4289	5·27
1916	785,520	21·0	14·3	91	3,239	1·38	2·74	4·12	739	0·94	3978	5·06
1917	668,346	17·8	14·2	91	2,598	1·31	2·58	3·89	638	0·95	3436	4·84
1918	662,661	17·7	17·3	98	2,509	1·28	2·51	3·79	2,529	3·81	5038	7·60
1919	692,438	18·5	14·0	93	3,028	1·67	2·70	4·37	1,337	1·93	4365	6·30
1920	957,782	25·5	12·4	85	4,144	1·81	2·52	4·33	1,086	1·13	4230	5·46
1921	848,814	22·4	12·1	81	3,322	1·38	2·53	3·91	925	1·09	4257	5·00
1922	780,124	20·4	12·8	75	2,971	1·38	2·43	3·81	1,051	1·35	4022	5·16
1923	758,131	19·7	11·6	69	2892	1·30	2·51	3·81	764	1·01	3656	4·82
1924	729,933	18·8	12·2	74	2847	1·39	2·51	3·90	849	1·16	3696	5·06
1925	710,582	18·3	12·2	75	2900	1·56	2·52	4·08	759	1·07	3659	5·15
1926	694,563	17·8	11·6	70	2860	1·60	2·52	4·12	709	1·02	3569	5·14
1927	654,174	16·6	12·3	70	2690	1·57	2·54	4·11	861	1·32	3551	5·43
1928	660,267	16·7	11·7	65	2920	1·79	2·63	4·42	790	1·20	3710	5·62
1929	643,673	16·3	13·4	74	2787	1·80	2·53	4·33	960	1·49	3747	5·82
B 1911/1915	—	23·6	14·3	109	—	1·42	2·61	4·03	—	0·99	—	5·02
1916/1920	—	20·1	14·4	91	—	1·51	2·61	4·12	—	1·68	—	5·80
1921/1925	—	19·9	12·2	75	—	1·40	2·50	3·90	—	1·14	—	5·04
1926/1929	—	16·9	12·3	70	—	1·69	2·56	4·25	—	1·25	—	5·50

TABLE II

a	b	c	d	e	f	g
A:—	AVERAGE BIRTH RATE 1911 – 1929	BIRTH RATE 1911	BIRTH RATE 1929	AVERAGE PUERPERAL MORTALITY 1911 – 1929	AVERAGE PUERPERAL MORTALITY 1923 – 1927	INFANTILE MORTALITY RATE LATEST FIGURES TO 1929.
ITALY	30	32	25	2·4	2·8	119
HOLLAND	26	28	23	2·6	2·4	—
FINLAND	25	29	21	3·6	3·1	—
DENMARK	24	27	19	—	2·6	—
NORWAY	23	26	18	2·7	2·8	49
ENGLAND AND WALES	22	24	16	4·0	4·0	65
BELGIUM	21	23	18	–	5·6	94
SWITZERLAND	21	24	17	5·5	4·4	—
FRANCE	19	19	18	4·5	— ※	—
B:—						
SOUTH AFRICA	29	32	26	–	4·9	—
AUSTRALIA	25	27	20	5·6	5·5	54
NEW ZEALAND	24	26	19	6·0	4·8	—
U. S. A	22	25	19	6·6	8·3	73

A & B — European Countries in the descending order of their Average Birth Rates, Other " " " " " " " " " "

b, c, d — approximate figures calculated from information in the Text of the Registrar-General's Annual Statistical Reviews.

e — Publication 61, Children's Bureau, United States Department of Labor.

f — Collected from various sources, mostly from the "Interim Report" and Dame Janet Campbell's "Maternal Mortality" and "Protection of Motherhood"

g — Latest available figures for and up to 1929.

※ France is given as "6" for the period 1915-1919 and "2·5" for 1925-1927. Owing to the marked fluctuation, and the possibility of the Interim Report being incorrect, as it is in many places, the space has been left blank.

TABLE III

CLASSIFICATION ACCORDING TO THE INTERIM REPORT

CLASS I

Deaths directly due to Childbearing
1596

CLASS II

Deaths not Primarily due to Pregnancy
404

GROUP	CLASS I	Totals.	Percentage of Groups 1+2	Percentage of Class I
1	Cases Showing a Primary Avoidable Factor	626	49	39
2	Cases in which no departure from Established practice having a causal relationship to the death has been found	660	51	41
3	Cases not strictly relevant to this part of the investigation viz. Abortions and Extra Uterine Gestation	188	—	12
4	Cases in which the information was insufficient	122	—	8

TABLE III

TABLE IV
PRIMARY AVOIDABLE FACTORS

HEADING	PRIMARY AVOIDABLE FACTORS	PERSON OR SCHEME AT FAULT.		TOTALS	PERCENTAGES OF:- GROUPS 1+2 1286 CASES	GROUP I 626 CASES	CLASS I 1596 CASES	CLASSES I+II 2000 CASES
A'		DOCTOR	28		2·2	4·5	1·7	—
		MIDWIFE	20		1·6	3·2	1·3	—
		PATIENT	109		8·5	17·4	6·8	—
	OMISSION OF ANTE NATAL EXAMINATION			157	12·3	25·0	10	8
A''		DOCTOR	37		2·9	5·9	2·3	—
		MIDWIFE	13		1·0	2·0	·8	—
		HOSPITAL	19		1·5	3·0	1·2	—
	INADEQUACY OF ANTE NATAL EXAMINATION			69	5·4	11	4	3
A	TOTAL "ANTE-NATAL" DEATHS			226	18	36	14	11
B		DOCTOR	146		11·4	23·3	9·3	—
		MIDWIFE	57		4·4	9·1	3·6	—
		HOSPITAL	21		1·6	3·3	1·3	—
	ERRORS OF JUDGMENT IN MANAGEMENT			224	17	36	14	11
C		ABSENCE OF SKILLED ANAESTHETIST	26		2·0	4·1	1·6	—
		ABSENCE OF SKILLED ASSISTANT	13		1·0	2·1	0·8	—
		UNSUITABLE ENVIRONMENT	25		2·0	4·0	1·6	—
	LACK OF REASONABLE FACILITIES			64	5	10	4	3
D	NEGLIGENCE OF PATIENT OR FRIEND			112	9	18	7	6

SECTION.	CASES SHOWING PRIMARY AVOIDABLE FACTORS		A† Omission of ante-natal examination	A†† Inadequacy of ante-natal examination	B Error of judgment in management of cases	D Negligence of patient or friend	TOTALS	GROUP I 626 Cases showing a primary avoidable Factor.	CLASS I 1596 Cases directly due to Child Bearing	2000 TOTAL CASES INVESTIGATED CLASSES 1+2.
X_1	FAULTS OF	DOCTOR	28	37	146	1	211	34	13	11
X_2		MIDWIFE	20	13	57	1	90	14	6	5
X_3		HOSPITAL	—	19	21	1	40	6	3	2
X	FAULTS OF "ATTENDANTS"		48	69	224	—	341	54	21	17
		PERCENTAGE CLASS I	3	4	14					
		OF GROUP I	8	11	36					
Y	FAULTS OF PATIENTS OR FRIENDS		109	—	—	112	221	35	14	11
		PERCENTAGE CLASS I	7			7				
		OF GROUP I	17			18				
Z	FAULTS OF ADMINISTRATION AND SCHEME		—	—	—	—	64	10	4	3
X Y Z	TOTALS		157	69	224	112	626	100	39	31
		PERCENTAGE CLASS I	10	4	14	7		PERCENTAGES		
		OF GROUP I	25	11	36	18		GROUP I	CLASS I	CLASSES 1+2

TABLE IV A

Dividing up the "Cases showing Primary Avoidable Factors" into Sections pointing to the person or persons responsible.

SEE GRAPH IV

AGE GROUPS FOR FERTILITY AND PUERPERAL RISK

TABLE V

ABERDEEN 1924

		a	b	c	d	e	f	g	TOTAL
AGE GROUPS		15/19	20/24	25/29	30/34	35/39	40/44	45/49	
A	1924	1611	9765	11228	8098	4923	2121	238	37984
B	1924	4·2%	25·7%	29·5%	21·3%	13·0%	5·6%	0·6%	100%
H		6	2	1	3	4	5	7	—
F	192	6·6	5·3	5·0	7·0	10·2	8·9	16·8	6·6
C	192	11	53	56	58	51	19	4	252
D	1924	4·4%	21·2%	22·4%	23·2%	20·4%	7·6%	1·6%	100%
K		6	3	2	1	4	5	7	—
E	B:D::	1: 1·0	1: 0·8	1: 0·8	1: 1·1	1: 1·6	1: 1·5	1: 2·7	—
G		125	100	100	137	200	188	338	—
I		5	6	7	4	2	3	1	—

TABLE VI

ENGLAND AND WALES 1924-1929

		a	b	c	d	e	f	g	Total
AGE GROUPS		15/19	20/24	25/29	30/34	35/39	40/44	45/49	
X_1	1924	64	430	631	694	635	347	43	2847
X_2	1925	64	483	692	670	613	330	47	2900
X_3	1926	69	445	742	651	599	320	33	2860
X_4	1927	64	383	668	672	568	293	40	2690
X_5	1928	75	436	730	679	642	321	34	2920
X_6	1929	90	413	733	658	598	270	24	2727
X	1924/1929	426	2590	4196	4024	3655	1881	221	17004
Y		2·5%	15·2%	24·7%	23·7%	21·5%	11·2%	1·3%	100%
W		6	4	1	2	3	5	7	—
Z	B:Y::	1: 0·6	1: 0·6	1: 0·8	1: 1·1	1: 1·7	1: 2·0	1: 2·1	—
U		100	100	133	183	283	333	350	—
V		7	6	5	4	3	2	1	—

A Confinements divided into Age-Groups.
B Expressed as a percentage of the total.
H The resulting Fertility in Descending Order.

C Puerperal Deaths.
D Expressed as a percentage of the total
K Expressed in a Descending Scale.

E Puerperal Risk expressed as a Ratio B:D
G Puerperal Risk expressed as a ratio to the lowest risk as 100 units
I Descending Order of this Puerperal Risk

F Puerperal Deaths per 1000 births

ORIGINAL CALCULATIONS AND TABLES
DATA COLLECTED FROM
REGISTRAR-GENERAL'S REVIEWS
AND
KINLOCH'S MATERNAL MORTALITY.

X Total Puerperal Deaths. Eng. and Wales 1924/1929
Y Expressed as a percentage of the total.
W Expressed in a Descending Scale.

Z Puerperal Risk expressed as a Ratio B:Y
U Puerperal Risk expressed as a ratio to the lowest risk as 100 units
V Descending Order of this Puerperal Risk

$X_1 - X_6$ Puerperal Deaths collected from the Registrar-General's Statistical Reviews for each year.

TABLE VII

Mean Age at Marriage

Data collected from
Registrar-General's
Statistical Review
Text
1929.

YEAR	1896 1900	1901 1905	1906 1910	1911 1915	1916 1920	1921 1925	1929	MEAN OF 1926 – 1929
ALL BRIDES	26·21	26·36	26·59	26·77	27·14	26·69	26·56	26·61
ALL SPINSTER BRIDES	25·14	25·37	25·63	25·75	25·81	25·57	25·53	25·54
ALL WIDOW BRIDES	40·70	40·37	41·06	41·65	38·66	40·83	44·53	43·94
SPINSTERS WITH BACHELOR	24·62	24·88	25·14	25·27	25·24	25·00	24·93	24·96
SPINSTERS WITH WIDOWERS	32·64	32·99	33·63	34·23	34·30	34·79	36·06	35·70
WIDOWS WITH BACHELORS	35·96	35·76	36·51	37·40	34·73	36·43	39·48	39·11
WIDOWS WITH WIDOWERS	47·99	45·09	45·82	46·57	44·74	46·48	49·03	48·54

TABLE VIII

INTERNATIONAL LIST.	CAUSES OF DEATH FEMALES ONLY	1921		1924		1929	
		ALL AGES	15 – 45	ALL AGES	15 – 45	ALL AGES	15 – 45
143/150	The Puerperal State	3322	3272	2847	2801	2787	2762
31	Respiratory Tuberculosis	15384	11087	14720	10637	13639	9964
87/96	Circulatory Diseases	34789	3701	40625	3678	62225	4077
97/107	other Respiratory Diseases	34124	2905	38874	2804	38619	2880
43/49	TOTAL Cancer	25373	2785	27290	2790	30612	2833
46	cancer of Female Genital Organs	5436	924	5626	932	6022	939
47	Cancer of the Breast	4684	641	5153	589	5944	684
128/142	non-Syphilitic Disease of the Genito Urinary System	7477	1720	7637	1621	9753	1782
108/127	Diseases of Digestion	16156	1944	11822	1784	12486	1765
57	DIABETES	2191	481	2358	338	3322	330
51	Rheumatic Fever	947	442	906	387	779	323
1	Enteric	301	198	252	166	195	109
38	Syphilis	761	100	515	86	497	108
52	Chronic and other forms of Rheumatism	1526	61	1586	68	2456	93
41	Purulent Infections	232	71	203	73	324	72

Table VIII A Comparison of the Common Causes of Death of "all Women" and "women Between 15-45".

Data collected and calculated from the Registrar-General's Annual Statistical Reviews, Medical Tables, Part I for 1921, 1924 and 1929.

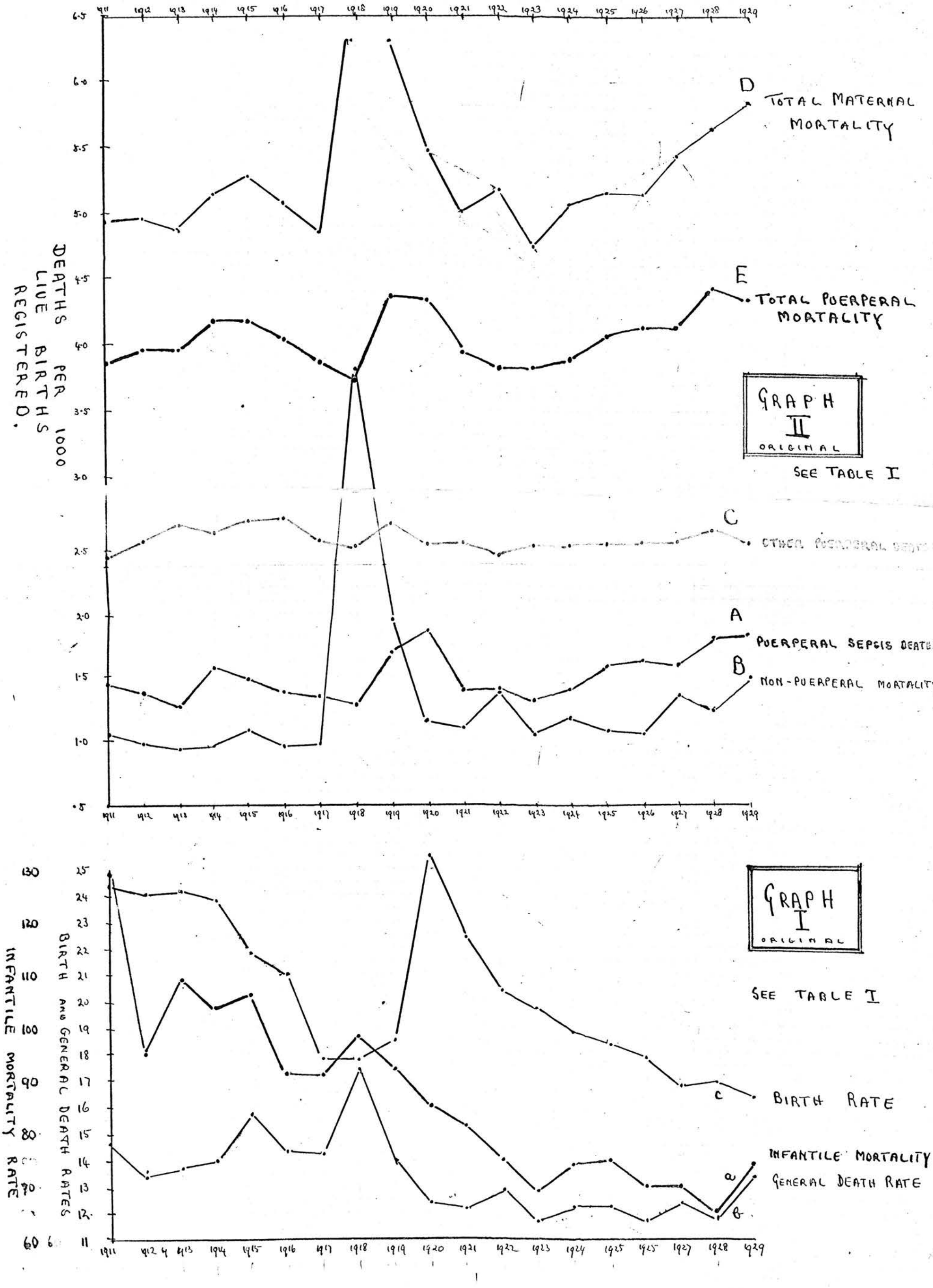
SEE GRAPH III

	A	B	C	D	E	F	G	H	I	J	K	L	M
	TOTALS FEMALE DEATHS	DEATHS FROM PURULENT INFECTION SEPTICAEMIA		PERCENT. OF B TO A	DEATHS FROM PERITONITIS OF UNSTATED ORIGIN		PERCENT. OF E TO A	TOTAL OF B+E	PEACENT OF B+E TO A	TOTAL FEM DEATHS 15-45	TOTAL FEM DEATHS 20-45	PEACENT OF B TO J	PERCENT OF B TO K
		FEM.	MALES		FEM	MALES							
1919	246,114	177	311	·07	255	154	·10	432	·17	47582	41559	·38	·43
1920	225,828	244	421	·10	263	185	·11	507	·21	38680	33871	·63	·72
1921	224,338	232	353	·10	230	167	·10	462	·20	36729	31951	·63	·73
1922	239.554	198	356	·08	278	146	·11	476	·19	37508	32938	·53	·66
1923	217.927	188	311	·09	265	152	·12	453	·21	34210	29737	·55	·63
1924	232,615	203	304	·09	231	145	·09	434	·18	35442	30948	·59	·66
1925	231,966	253	371	·11	270	127	·12	523	·23	34766	30177	·73	·84
1926	222,255	254	429	·11	264	109	·11	518	·22	33540	29269	·76	·87
1927	238.003	267	412	·11	246	115	·10	513	·21	34845	30527	·77	·87
1928	224847	287	405	·13	266	100	·11	547	·24	33493	29289	·86	·98
1919/1923		1039			1291								
1924/1928		1264			1271								

TABLE IX

A Review of Causes of Death which are Possibly associated with abortion.

A Registrar General's statistical Reviews Table 1. 1928.
B C " " " " Table 4. Inter. List Nº 41. 1919-1928
E F " " " " Table 4 " " Nº 126 1919-1928
J. K " " " " Table 15 1919-1928
D.G.H.I.L.M. Calculated from these data



GRAPH II
ORIGINAL

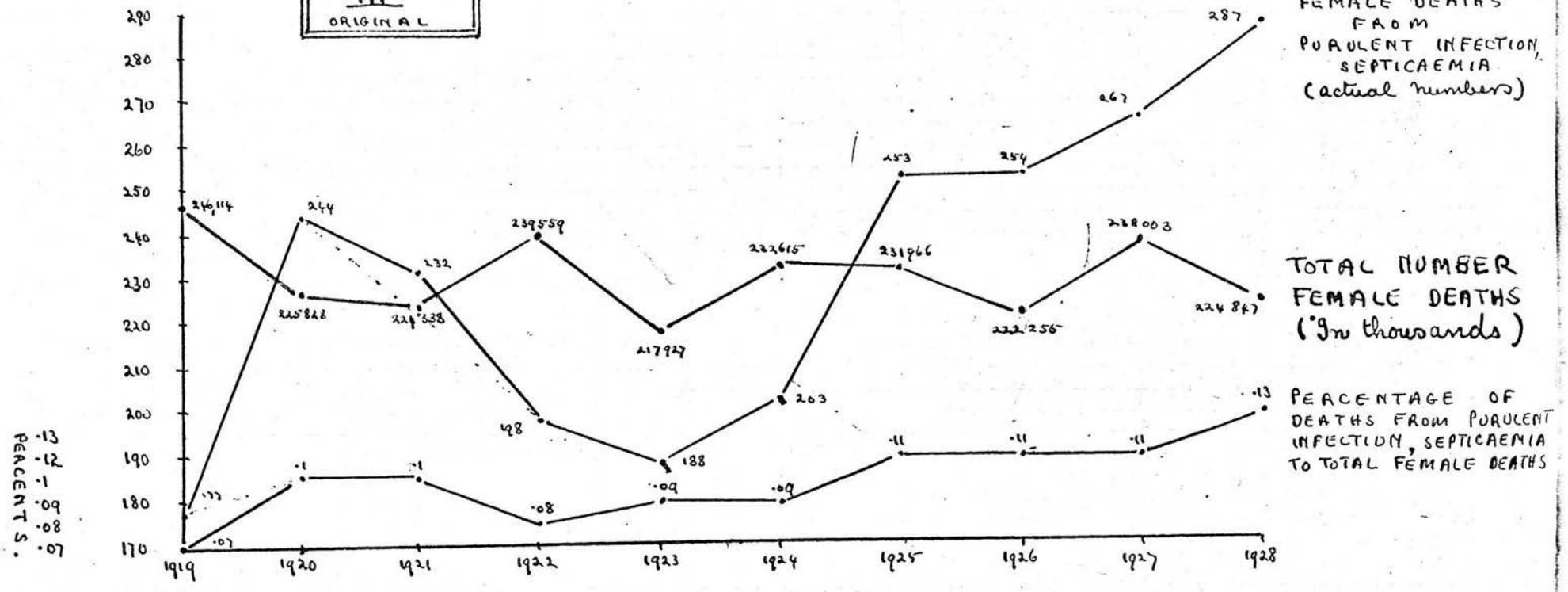
SEE TABLE I

GRAPH I
ORIGINAL

SEE TABLE I

GRAPH III
ORIGINAL

SEE TABLE IX



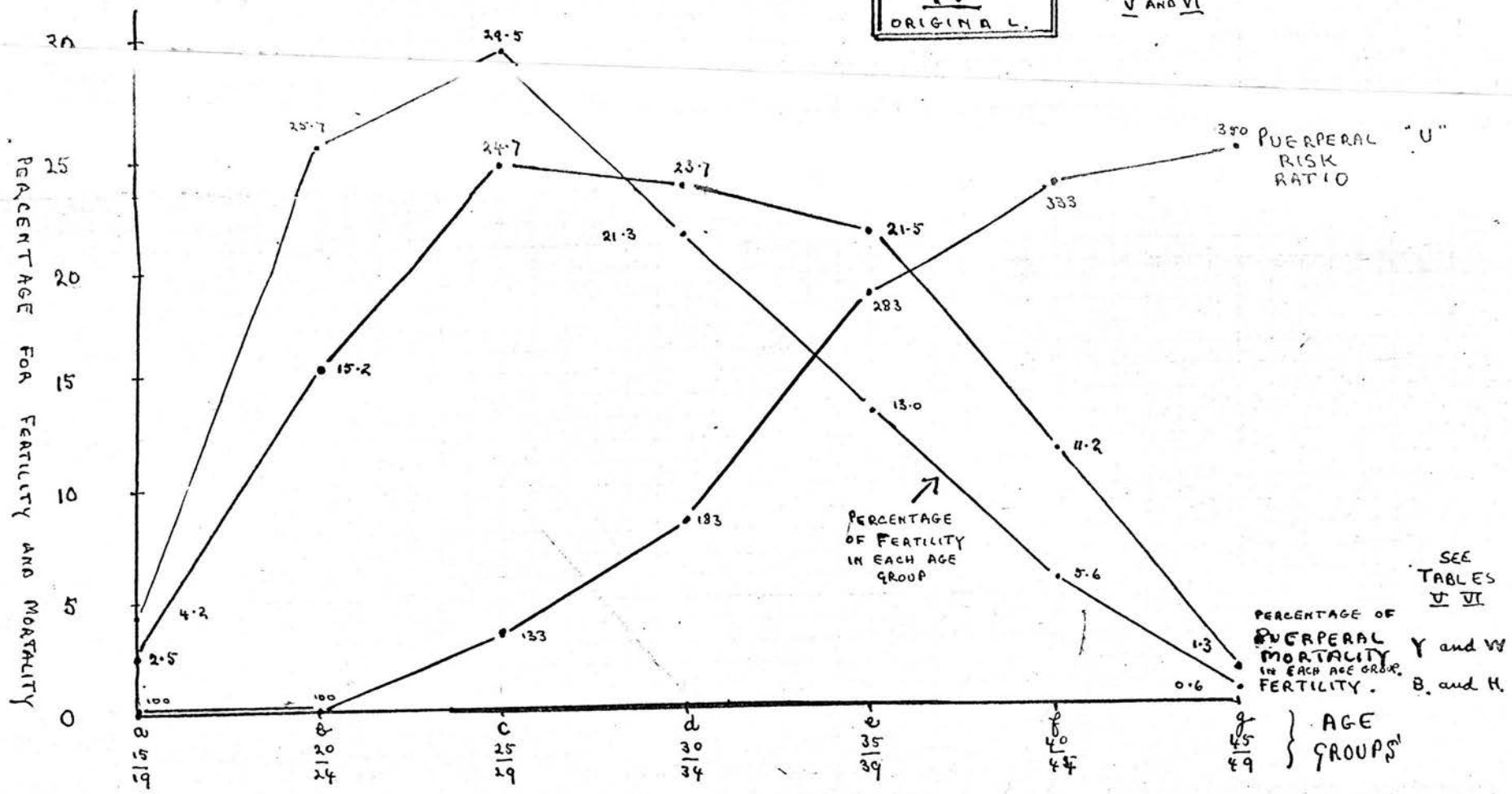
FEMALE DEATHS FROM PUERPERAL INFECTION, SEPTICAEMIA (actual numbers)

TOTAL NUMBER FEMALE DEATHS ('In thousands)

PERCENTAGE OF DEATHS FROM PUERPERAL INFECTION, SEPTICAEMIA TO TOTAL FEMALE DEATHS

GRAPH IV
ORIGINAL.

SEE TABLES V AND VI



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Memo. 156/M.C.W.

MATERNITY AND CHILD WELFARE.

I. Ante-Natal Services.

1. The Departmental Committee on Maternal Mortality and Morbidity, which was appointed by the Minister of Health in June, 1928, have submitted an Interim Report, which was published in July of the present year. This Report has furnished both the Government and the public with many new facts and conclusions in regard to the subject. As a result of their investigation into 2,000 deaths of women in childbirth during the two years, the Committee came to the conclusion that there were *four primary avoidable causes* in the train of events which led up to a fatal issue. First, there was absence of ante-natal care in 17 per cent. of the deaths; secondly, there were errors of judgment in practice or treatment by doctors or midwives in another 17 per cent; thirdly, there was lack of reasonable facilities available for effective medical care in 5 per cent. of the cases; and fourthly, in 9 per cent. there was negligence of the patient, or her friends, to adopt or carry out medical advice offered to them. Thus not less than 48 per cent. of the total deaths from childbirth into which inquiry was made seemed to the Committee to have been avoidable. In the remaining 52 per cent. of the records of death examined no preventable factor actually emerged, but in some cases, owing to incompleteness of the records, it was not possible to come to a definite conclusion.

In summary, the Committee found that of the cases of death brought to their notice *not less than one-half were directly preventable* under suitable conditions. These findings not only confirm previous impressions that much mortality and morbidity associated with childbearing might be prevented, but indicate the kind of unsatisfactory conditions which must be removed or ameliorated if we are to secure, as we must, a reduction in the relatively high maternal mortality rate of the country, not only in those districts where the maternal mortality has been highest over a number of years, and in which little decline, if any, has occurred, but in the country as a whole.

Generally speaking, it is clear from cumulative experience of the work of the maternity services in their present form that the solution of this complex problem is most likely to be found in an all-round tightening up as well as strengthening of each link in the chain of obstetric supervision, and an increased watchfulness over all stages of pregnancy and labour rather than in any single arresting or comprehensive remedy. Much of this improved supervision will come about gradually if the education and training of the medical student and the midwife are designed to equip them to appreciate more closely the extreme importance of painstaking attention to

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detail, as well as to understand and apply the scientific methods of sound treatment. Moreover, the influence of a better informed public opinion, and the effective education of the mother herself, whether through direct instruction, or through the action of voluntary organisations, or the indirect effect of a readily available and adequate maternity service, should also prove beneficial in securing a higher and safer standard of practical midwifery.

"*It is certain,*" the Committee say, "*that an excessive maternal mortality can be prevented, for in some lying-in institutions, and in large groups of women in confinement at home, it is already being prevented by these very means. What is being done for some women can, and should, be done for all.*" Some examples of such successful midwifery may be mentioned. From the years 1924–1928 inclusive, the hospital and district cases of the *British Hospital for Mothers and Babies at Woolwich* numbered 4,221, and the maternal mortality rate was 0·71 per thousand births; at the *East End Maternity Hospital* (1921–1928) the hospital and district cases numbered 17,525, and the maternal mortality rate was 0·68; at the *General Lying-in Hospital* in Lambeth (1920–1929) the hospital and district cases numbered 25,906, and the maternal mortality rate was 1·31; in the year 1928 the *Queen's Institute Nurses* were responsible for 65,077 district midwifery cases, and the maternal mortality rate was 1·9; and the *Plaistow Maternity Hospital* (1910–1929) undertook 87,749 district cases and the maternal mortality rate was 0·77 per thousand. These figures compare very favourably with a total mortality rate for England and Wales in 1929 of 4·33 per thousand. The urgent, and indeed vital, importance of Local Authorities directing renewed attention to the matter is therefore obvious. Many Local Authorities have provided facilities for ante-natal supervision by the establishment of Ante-natal Clinics; but the Report shows that it is not sufficient to organise these Clinics and encourage doctors and midwives to use them. If a Clinic is to render the best possible service to the women for whom it is provided, it is desirable to associate the doctors and the midwives practising in the area much more directly with the Clinic and its staff.

2. The Ante-natal Clinic has a two-fold function:—

(a) *Medical and nursing*, including the examination and routine supervision of such women as ask for it; assistance in the supervision of the patients of doctors and midwives referred by them for this purpose, and the examination of patients referred by doctors for the advice of an obstetric specialist.

(b) *Educational and social*, including the practical teaching and advice given to the mother in regard to her own health and that of the infant, and the systematic following up of all women in attendance throughout their pregnancy.

The Ante-natal Clinic should therefore be established and equipped as an *Ante-natal Centre* for all the maternity work of the area, to be in fact a place for advice and helpfulness for any expectant mothers who are in need of social and medical assistance from doctors, midwives or nurses.

The staffing, equipment and management of the Ante-natal Centre are dealt with in the memorandum which was circulated to Local Authorities in July, 1929. Many of the existing Centres do not at present reach the standard described in the memorandum, and it is important that efforts should be made, not only to establish further Centres where they are needed, but to secure that the present Centres are fully efficient.

3. The Ante-natal Centre has, however, the obvious disadvantage that the doctor in charge of the Centre seldom, if ever, actually delivers the patient, or is the doctor called in by the midwife in an emergency. In some cases this disadvantage can be overcome to a certain extent by keeping the patient's doctor fully informed of the findings at the Centre, but in many cases the medical officer of the Centre is not aware of the name of the doctor who may attend the confinement. It is, therefore, clearly desirable to encourage closer co-operation between the Centre and the doctors practising in the area which it serves.

4. In the case of women who engage a doctor for the confinement the necessary ante-natal supervision will be undertaken by him, and in the case of women who are insured persons the insurance practitioner is responsible for medical attendance during pregnancy. For these women the Ante-natal Centre should be available for any additional care the doctor considers necessary. But many uninsured women who engage midwives for the confinement are unable also to pay the fee of a doctor for ante-natal supervision, and for such women the necessary provision should be made through the maternity and child welfare service.

5. This can be done at an Ante-natal Centre if it is reasonably accessible to the patients, and they are willing to attend there. But in sparsely populated areas it is impracticable to provide Centres within a reasonable distance of the homes of most of the women concerned, and in towns there are many women who cannot be persuaded to attend the Centres. In some rural areas the County Councils are making arrangements with private medical practitioners whereby the latter undertake the routine ante-natal examination of uninsured women who have engaged midwives for the confinement. Arrangements of this kind might well be made by Local Authorities, not only in rural areas, but also in towns to meet the needs of those uninsured women who are reluctant to visit a Centre for the purpose of ante-natal examination.

6. It is suggested that a list might be prepared by the Authority of those doctors practising in the area who are willing to undertake this service for uninsured women who engage midwives. The latter should be urged to explain to their patients the advantages of consulting a doctor during pregnancy, and, if they are unwilling to attend at the Centre, encourage them to select one of the doctors on the list, who should be the doctor to be called in by the midwife if any emergency should arise. The doctor would arrange to conduct the ante-natal examination either at the patient's home or at his surgery, and he should be offered the facilities of the Centre, including the services of the nurse or the health visitor, for the necessary following up of the case and subsequent supervision. In some cases arrangements might be made for the doctor to conduct the examination at the Centre with the patient's consent. The midwife engaged by the mother should be kept fully informed and encouraged to undertake as much of the ante-natal care as she is in a position to do. It is essential that the full co-operation of the midwives should be secured, and it should be made clear to them that these arrangements are designed in their interests as well as those of their patients.

7. Experience has shown that unless ante-natal supervision is adequately performed it may not only fail to benefit the patient, but may even involve additional risk by giving her a false sense of security. Under the Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930, the Medical Officer of an Ante-natal Centre is required to have had special experience of practical midwifery and ante-natal work, and it is suggested that there are definite advantages in securing for these posts the part-time services of private practitioners who possess the special qualifications prescribed by the Regulations. If possible, facilities should also be provided for other doctors to see their patients at the Centre if they so desire.

8. It is considered that arrangements on the above lines, co-ordinating the work of the Ante-natal Centres with that of the doctors and midwives, should prove to be one of the most helpful ways of teaching women to accept ante-natal supervision as part of the normal preparation for a confinement, rather than an emergency measure implying some dangerous or unusual condition. Such arrangements should also do much to secure medical advice for women expecting their first confinement, with its exceptional risks.

II. Supply of Midwives.

1. It is now generally recognised that the services of a qualified midwife should be available for every confinement, whether she acts as a midwife in charge, or as a maternity nurse under the direction of a doctor. The employment of a midwife to carry out maternity nursing not only secures for both mother and child the advantages

f skilled attention, but also obviates the risks associated with the mployment of a handywoman or untrained "nurse."

2. In most rural areas both midwifery and maternity nursing an only be carried out satisfactorily by midwives employed by District Nursing Associations, and in many areas this is already done vith financial assistance from the County Council. But there are still a number of rural parishes without midwives, and these are generally sparsely populated areas which cannot support a nurse-midwife without substantial assistance from the County Council. In such areas there is usually a special need for the services of a midwife if skilled attendance is to be available for the mothers, but there is often a difficulty in attracting a well-qualified and keen midwife owing to the paucity of both nursing and midwifery cases. This difficulty might be overcome with the assistance of the County Council by the formation of new District Nursing Associations covering a wide area, or by an extension of the areas served by existing Associations, if such facilities as a motor-car and a telephone service were provided for the midwife. In some cases it might be found possible to secure for a more limited area the services of a midwife who has already had considerable experience, and who would welcome the opportunity of lighter work and greater leisure. It is hoped that this matter will receive careful consideration by the Councils of those Counties in which there are any areas without a supply of midwives.

3. In many urban districts there is a need for a better distribution of midwives, and for a greater use of their services for maternity nursing. Some Local Authorities already employ either whole-time or part-time municipal midwives, and there would be advantage in an extension of these arrangements. It is of course necessary to avoid the displacement of competent independent midwives already in practice in the district by other midwives appointed by the Local Authority, and to maintain the right of the mother to employ the midwife she prefers; but by the judicious support of midwives already in practice, and by placing midwives in areas where they would be unable to make a living without assistance, the Local Authority can ensure ready access to a midwife by all women requiring her services, and can also do much to improve the conditions of practice for the midwives.

4. The employment of handywomen is still a common practice in some urban districts, and it is not unusual to find that the midwives in these districts are by no means fully occupied and have difficulty in earning a living. In many cases a woman who engages a doctor for her confinement is unable also to pay the fee of a midwife to act as maternity nurse, and it is suggested that Local Authorities should encourage the employment of midwives in these cases by contributing to the fee of the midwife. It will be essential to secure

the co-operation of the doctors practising in the district in persuading their patients to accept the services of a trained midwife for the maternity nursing.

III. Consultants.

Many Local Authorities already provide the services of a consultant in cases of puerperal fever and, in some instances, for cases of difficult labour. It is desirable that in each area the Local Authority should satisfy themselves that a consultant is available for any doctor who needs assistance in difficulties or complications arising during pregnancy, or at or after confinement. It will generally no doubt be found desirable to engage for this purpose the consultant at the Maternity Hospital or Ante-natal Centre serving the area.

IV. Hospital Beds.

In some areas there is still a need for further provision of hospital accommodation, (1) for cases needing institutional treatment, including not only complications of labour and the puerperium, but also patients suffering from abnormal ante-natal conditions and intercurrent diseases, and (2) for patients whose home conditions are unsuitable for a confinement. In Counties and County Boroughs, the Councils may be able to provide the necessary beds by the adaptation of accommodation in institutions transferred to them under the Local Government Act, 1929.

It is suggested that Local Authorities should consider, wherever practicable, the desirability of affording facilities to private practitioners to attend their own patients in maternity institutions.

V. Provision of Ancillaries.

Some or all of the following services have already been provided in many areas, and it is suggested that Local Authorities should consider the desirability of making provision through the Centres for such of these services as are not already available in their districts.

(1) Sterilised maternity outfits for patients for whom either the doctor or the midwife considers that this provision is desirable.

(2) Home helps for domestic assistance during the lying-in period, and also during pregnancy in those cases in which there are abnormal conditions rendering it dangerous for the woman to continue her usual household work.

(3) Supply of milk for expectant and nursing mothers.

(4) Provision of laboratory facilities for the examination of pathological material submitted by doctors.

VI. Education.

Whatever provision is made for the care of maternity, it is clear that further efforts are necessary to persuade women to take advantage of the facilities provided. This is especially true of ante-

natal supervision, and there is a need in every area for a campaign of enlightenment on this subject. Local Authorities are in the best position to organise such a campaign with the assistance of their Medical Officers and Health Visitors, but it will be essential to secure the co-operation of the doctors and midwives practising in their areas, and of suitable voluntary organisations concerned with the welfare of women. It is hoped that all Local Authorities will give special consideration to the importance of educating public opinion on this vital matter.

Officers of the Department will gladly confer with Authorities who are desirous of improving or extending their existing arrangements and do anything in their power to facilitate progress.

MINISTRY OF HEALTH,
LONDON, S.W.1.
December, 1930.

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Comments by medical investigator.

Signature.....

Comments by practitioner in charge of case.

Final Remarks by M.O.H. or Investigator.

Signature.....

Date.....

ficer or the
ficer or the
death ?

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Ministry of Health. — Maternal Mortality Committee.

MATERNAL MORTALITY DUE TO PREGNANCY OR CHILDBIRTH.

District St Pancras **Name** (initials or number) E.M.D **Age** 31 **M.S.W.**

Date of Death 13 . 2. 30 **Cause** of death as stated on certificate

Condition of child (alive, still-born, macerated)

Previous Pregnancies (if obtainable)

No.	Year	Term Prem. or Abort.	Complications during			Child	
			Pregnancy	Labour	Puerperium	Living ?	Healthy ?

Last Pregnancy

Occupation, with dates

Housing — No. of children at home

Standard of living (well-to-do, poor, destitute)

Previous illnesses (*e.g.*, Scarlet Fever, erysipelas, tonsillitis)

Has patient recently suffered from, or been in contact with infective illness (*e.g.*, throat, nose, ear, skin, foci of suppuration in pelvis or elsewhere)

General health during pregnancy (including fatigue or overwork)

Ante-natal care from	(1) A.N. Clinic	(2) Doctor	(3) Midwife
No. of consultations			

Examination of **Urine** and result

Brief Summary of the Case	Date	Hour	Remarks
At Home Doctor arrived (if engaged) Midwife arrived Doctor arrived (if called) Handywoman			
In Hospital Time of admission When first seen by Doctor			
Pains began Membranes ruptured { Spontaneous / Artificial Os fully dilated Baby born Placenta delivered			

Was there difficulty as to admission to Hospital ?
(*e.g.*, ambulance, bed not available, distance, etc.)

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Abortion

Probable cause
Duration of Pregnancy
Date of first symptoms
Treatment
Cause of death P.M. findings

Toxæmias of Pregnancy

Probable date of conception
Past history of renal disease

Toxæmic symptoms, if any, in earlier pregnancies
Date of appearance and nature of symptoms in pregnancy under inquiry
Date of first and last examination of urine Date of appearance of albuminuria
Result

Treatment, if any, for albuminuria—at home
in hospital

Blood pressure If raised, when first detected
Fits—ante, intra, or post partum Number of Date of
Operative interference Nature and date
Other treatment

P.M. findings

Hæmorrhage

Ante-partum (Placenta prævia, accidental) Was doctor immediately available ?
Had patient been told to report bleeding or faintness ?
Had there been previous bleeding during this pregnancy ? How was this treated ?

Treatment
by midwife
by doctor
Was patient removed to hospital ? If not, why ?
Condition on arrival at hospital
Treatment in hospital

Post-partum (before or after expulsion of placenta). Probable cause
Treatment
by midwife
by doctor

Blood transfusion. Available
used

P.M. findings

Difficult labour

Presentation :
Disproportion
Was difficulty

Operative inte
Forceps
Indicatio
Time of
Condition
Descent
Version
Caesarean s

Other oper
Manual rer
Anæsthetic
Laceration
Condition c

Puerperal Sepsis

Date of Notifi

Condition of
General
Local
Was ther
Treatmer

Disinfection
1. Patient
2. Attend
Hands
Instru
Were
Suture

Vaginal exam
Precaution

Complications

Trauma—nat

Placenta and

Toilet of pat

Nursing duri
Day of onset
Treatment

Day of death
Bacteriologic
Suggested so

P.M. findings

Difficult labour

Presentation and position

Disproportion between foetus and pelvis ?
Was difficulty anticipated ? Steps taken, if any

Operative interference (at home—in hospital)

Forceps
Indication
Time of application
Condition of cervix
Descent of head in pelvis
Version
Caesarean section—reasons

Other operative treatment, nature
Manual removal of retained placenta or membranes
Anæsthetic or narcotic By whom administered Duration
Laceration of genital tract How treated
Condition of patient at end of labour

Puerperal Sepsis

Date of Notification (P.P. or P.F.)

Condition of patient at onset of labour

General
Local
Was there abnormal vaginal discharge ?
Treatment before labour ?

Disinfection Precautions during and after labour—antiseptics used.

1. Patient (Preparation of perineum, vulva)
2. Attendant (doctor, midwife, nurse)
   Hands gloves gown
   Instruments
   Were sterile surgical sheets, towels, pads, etc., used ?
   Sutures

Vaginal examinations Number By whom made
Precautions taken on each occasion.

Complications of Labour

Trauma—nature and method of treatment

Placenta and membranes spontaneous—expressed—manual removal
Complete or incomplete
Toilet of patient after labour

Nursing during puerperium including local treatment
Day of onset of fever Signs of local or general infection
Treatment { at home / in hospital

Day of death
Bacteriological findings
Suggested source of infection

P.M. findings